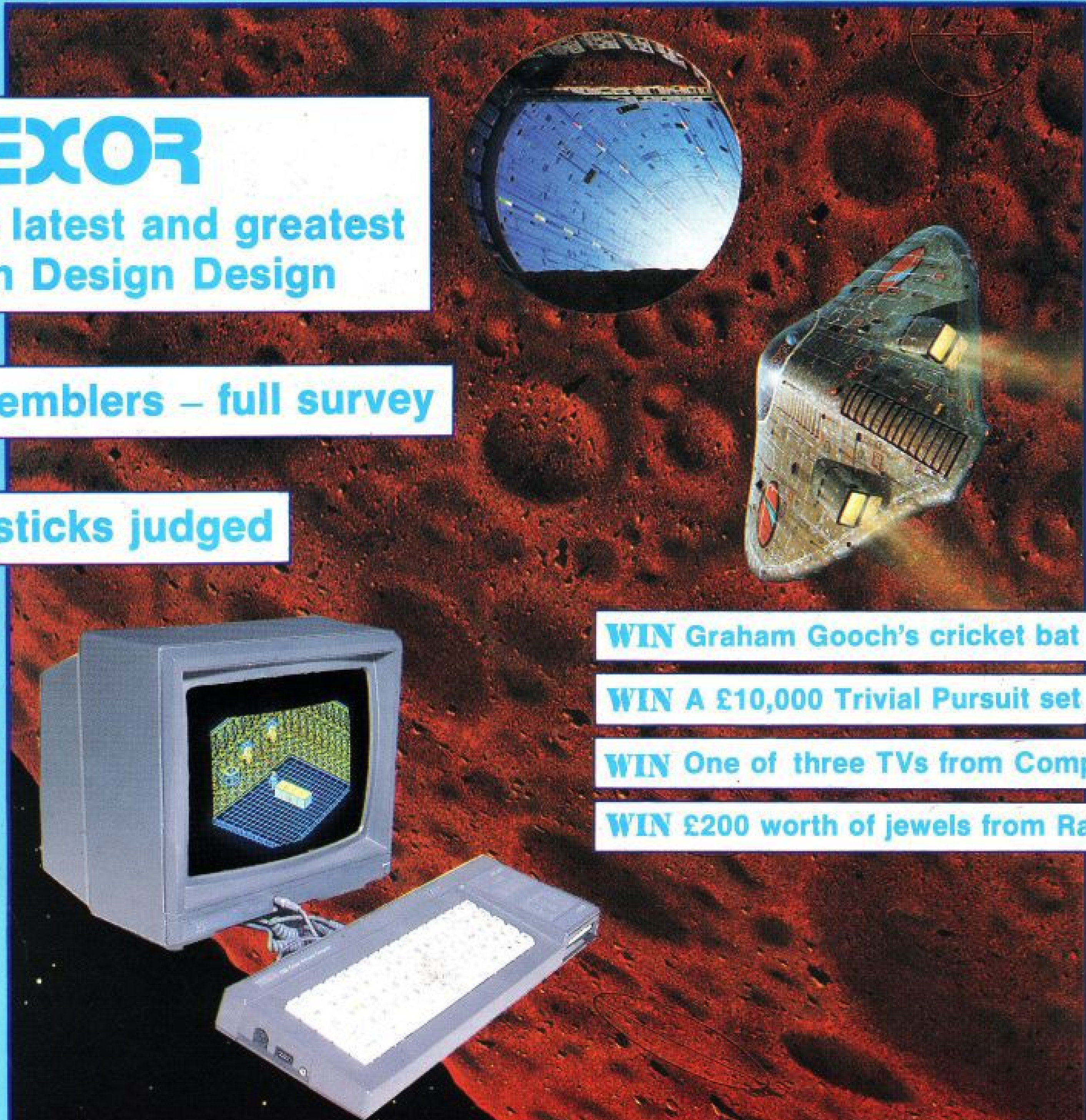
The Official Amstrad Magazine

September 1986 £1.00

AMSTRAD COMPUTER USER



NEXOR
The latest and greatest from Design Design

Assemblers – full survey

Joysticks judged

WIN Graham Gooch's cricket bat

WIN A £10,000 Trivial Pursuit set

WIN One of three TVs from Compumart

WIN £200 worth of jewels from Rainbird

Plus: How to win at Spindizzy, PCW games, programming tips, listings, pokes, reviews and much, much more.

Norway NOK 20.00 Spain 300 Ptas Turkey 1650 TL Denmark Kr. 29.85 New Zealand NZ$4.95 Australia AUS$3.95 Rec.



ALSO AVAILABLE · CASSETTE 50
CASSETTE 50 £9.95 / £14.95 DISK 50
DISK 50 ANOTHER GREAT VALUE PACKAGE FROM
cascade CASCADE GAMES LTD
DISK 50
50 · GREAT · GAMES · ON · ONE · DISK
cascade CASCADE GAMES LTD
Cascade Games Ltd.,
Harrogate, HG1 5BG,
England.
FOR THE AMSTRAD 464, 664 and 6128
Menu driven with instant access to every game
Available from all good software suppliers or direct from Cascade — 24 hour ordering Service on (0423) 504663

REGULARS

FEATURES

PROGRAMMING

REVIEWS

COMPETITIONS

OFFERS

AMSTRAD COMPUTER USER
The official magazine for users of Amstrad computers

169 King's Road, Brentwood, Essex CM14 4EF.
Tel: 0277-234459 (Editorial); 0277 234434 (Advertising)
Telecom Gold: 72:MAG012
Editor: Simon Rockman
Deputy Editor: Jeremy Spencer
Assistant to the Editor: Alexander Martin
Advertisement Manager: Jane Nolan
Advertisement Assistant: Lorraine Day
News trade distribution: Europress Sales & Distribution Ltd, Unit 1, Burgess Road, Ivyhouse Lane, Hastings, East Sussex TN35 4NR. Tel: 0424 430422.

Joycestick announced

Cascade, the people that do those 50 game compilation tapes, have announced they are to bring out a joystick interface for the Joyce sisters.

This will be a small black box that plugs into the expansion socket on the back of the 8256 and 8512. The interface has a standard nine pin D type connector and will accept standard makes of joystick.

Cascade say that they have games to convert to the Joyce but there was no joystick to control them, so they decided to produce their own.

Cascade director Nigel Stevens states, "It is our intention to market the interface through all of the leading Amstrad dealers – possibly with a couple of board games to get the user started. We anticipate healthy Christmas sales".

The company is hoping to persuade software producers to include the necessary "hooks" in their games, providing the option of using the Cascade joystick. The price is expected to be £24.95, but don't forget that this doesn't include the cost of the joystick itself. You can get more information from Cascade on 0423 525325



Joy for the Joyces



Nigel Stevens: "We anticipate healthy Christmas sales"

Boxing contest

Do you remember the three inch disc box that featured in last month's news? Do you remember that SBS Data Services advert claiming to be the exclusive suppliers of the box? Well, ACU has been asked by Micro Interface to point out that they have exclusive rights to sell the three inch box, so there! And their boxes are a quid cheaper.

Does anybody want to buy a shoe box? Very good value for money. Ideal for storing three inch discs, cassettes and bits of paper. Available exclusively from me. Special introductory offer, a free pair of shoes with every purchase. If you still want to buy the plastic variety, ring Micro Interface on 01-340 0310.

Beyond boldly go

You would think that a successful science fiction series based on exciting spaceship stories would have spawned a whole host of computer games.

But if I say the immortal words "Star Trek", you'll probably groan and make yawning gestures. shaking your head solemnly and muttering "not that old chestnut".

A game called Star Trek has been knocking about for years. Cropping up in books on Basic and being copied from mainframe to micro, system to system, the Basic version of Star Trek haunts anyone who would do anything with the title.

Star Trek, the TV series, has been around for 20 years now, and all the fans are planning a celebration. Brave Beyond Software is to have a bash at producing a state of the art Star Trek game to coincide with the celebrations and yet another rescreening of the series from mid-September.

I enjoyed watching Star Trek as a kid, then as a teenager but now I'm practically middle-aged my interest is wearing as thin as the video tapes must be.

However there is a great deal of scope in modern computer games to produce a really good game based on the series. I can't wait to beam down to a planet surface or see Captain Kirk have a punch up with a Klingon.

Lords of Midnight programmer Mike Singleton heads a programming team who intend to boldly program something no man has seen before, hopefully.

Versions should be available for Spectrum, Commodore, Amstrad and Atari ST.

Locomotive wheels out the goods

Locomotive are currently putting the final touches to mail merge and a spelling checker for Locoscript. Due to popular demand, Locomotive has consented to include these facilites in the 8256 word processor.

Mail merge facilities allow an address list, containing a list of contacts, for example, to be incorporated into a standard letter, one address at a time. This makes it possible to do mail shots of interesting items of news, or perhaps offer services to a large number of people.

If that isn't in your line you can always use it to send a standard thank you letter to all your relations at Christmas. The spell checker is for all the bad spelars among us. It can check through a document highlighting all the words not currently in its dictionary, that is the incorrectly spelt ones.

The two packages will each include the latest version of Locoscript within the price, not yet finalised but initially set at £39.95. You'll be able to buy both programs from Amsoft Mail Order in Sunderland.



"Whatever you do, don't lose your head . . ."



Ouch!

Highland games

A new film is shortly to appear in our cinemas and Ocean has already secured the game rights. The film is called Highlander and you may already have seen a glimpse of it on Film 86.

Starring Christopher Lambert, who played Tarzan in Greystoke, and Sean Connery, the film is an adventure story of good versus evil through the ages.

The plot involves Connor MacLeod (played by Christopher Lambert), a Scottish clansman. It is 1536, MacLeod is mortally wounded in a battle with an evil and terrifying warrior called the Kurgan. Strangely, his wounds heal.

Five years later a Spanish nobleman by the name of Ramirez (played by Sean Connery) seeks him out, revealing that he and MacLeod are immortal and can only be killed by decapitation with a sword.

Ramirez tells MacLeod of a time called the Gathering in the distant future when all immortals will battle for the Prize, ultimate power. The Kurgan, also immortal, must not win.

Destiny awaits MacLeod in the 20th Century. A series of murders in New York draw MacLeod, who is now an antique dealer in the city, into the final conflict with the Kurgan.

Let's hope that the Highlander game is more exciting than Ocean's other tie-in game V.

Free software from ACU

You can now down load the listings from *Amstrad Computer User* from MicroLink. Telesoftware has been available from some time on Prestel thanks to the Amsnet area of Viewfax, but this only offers some of the programs from past issues.

The new MicroLink telesoftware area will offer all the programs from ACU as the issues appear.

DAVE and PAM by ALEX & SPITAL





You know you deserve the best
Deluxe, robust construction.
Comfortable rugged hand-grip, 8 directional control with automatic centering.
Heavy duty base with strong stabilizing suction cups.
Highly sensitive light touch MICRO SWITCH fire buttons.
Ergonomically designed control handle with indestructable METAL SHAFT.
Built in AUTO FIRE function.
DELUXE
Cheetah MACH I
MICROSWITCH JOYSTICK
ONLY £14.95
With METAL SHAFT AUTO FIRE 12 MONTH WARRANTY
Mach I Joystick compatible with: • Sinclair ZX Spectrum Computers • Amstrad computers • Commodore 64 & VIC 20 Computers • Commodore C16 & Plus 4 Computers (adaptor sold separately) • MSX Computers • Atari 2600 & Atari 5200 Video Game Systems • Atari Home Computers
Prices include VAT, postage & packing. Delivery normally 14 days. Export orders at no extra cost. Dealer enquiries welcome.
Cheetah products available from branches of WHSMITH High St. Stores and all good computer shops.
Cheetah Marketing
CHEETAH MARKETING LTD.
1 WILLOWBROOK SCIENCE PARK
CRICKHOWELL ROAD, ST. MELLONS, CARDIFF
TEL: CARDIFF (0222) 777337 TELEX: 497455
FAX 0222 779404

Go batty with Audiogenic

You can win a cricket bat, and not just any bat at that, no a top-notch bat like the one that the top English batsmen used when they defeated, er... when they nearly drew against . . . er when they played this season.

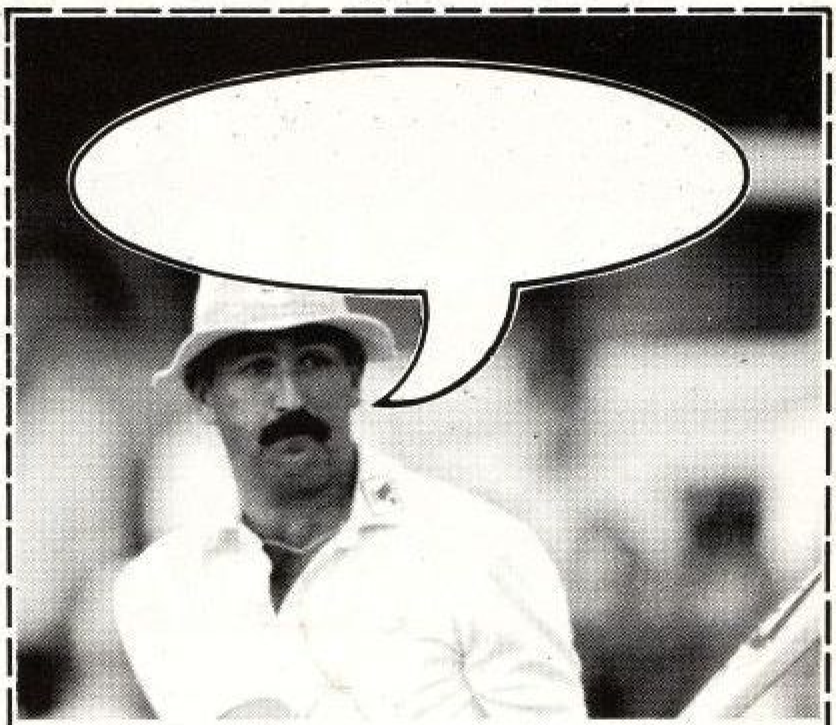
To make the bat that much more special it has been signed by Graham Gooch, so that even if you don't play the game you will have something to admire.

Just one prize is a little mean, so there are six runners-up (no, not runners out) prizes of floppy sun hats which have been similarly autographed. All the prizes will make you the envy of your friends and team mates.

The prizes have been provided by Audiogenic who are justifibly proud of their new Grahame Gooch Test Cricket game. This gives you the power of an England selector, you choose the team and then play batsman or bowler. For the real cricket buffs there is a simulation mode which mimics the strategy of a game without too much effort. For the players among us who prefer a bit of action those prgramming-type people at Audiogenic have provided an arcade game which derives its strength from much joystick waggling and button twiddling.

Rules

1. The winner will be the funniest entry drawn from the box (of entries - not cricket) on September 19. The runners up will be the next six not quite so funny ones.
2. You may photocopy the form but only one entry is allowed per reader.
3. The judge's decision is final. No employees of ACU may enter.



How to win

Look at the picture above. What is he saying? What would you be saying? Fill in the bubble and if your entry wins a bat could be winging (wrong sort of bat – Ed) its way to you.

Name ________________

Address ________________

____

____

Send your entry to: Audiogenic Competition, Amstrad Computer User, 169 Kings Road, Brentwood, Essex CM14 4EF.

A golden opportunity!

This is a jewel of a competition. Rainbird has taken on the marketing for the Jewels of Darkness trilogy of adventures and to celebrate the event it is offering a prize of £200 to lucky Amstrad computer users.

Jewels of Darkness is based on the original Colossal Cave adventure. It features all the usual adventure type things, but has been brought right up to date by the wizard programmers at Level 9. There is a new input routine, or parser, which can handle complicated English sentences like "Attack the scaley green dragon with your bare hands". There are over 200 graphic locations and each game comes with a poster and a novel.

Jewels of Darkness is huge, so the three parts of the trilogy are split over three tapes. The whole package costs £14.95 with a disc version to be announced in the near future.

The questions

1. Rainbird software takes its name from the boss of the company. What is his first name?
   a. Tony
   b. Richard
   c. Peter

2. Where was the biggest jewellery robbery?
   a. Sierra Leone
   b. London
   c. Paris

3. Where is "The Jewel House"
   a. The Eiffel Tower
   b. The Tower of London
   c. The Tower of Pisa

What you can win.

The prizes have been split three ways. There is a first prize of a £125 voucher to be spent at a major High Street jewellers with second and third prizes of £50 and £25 respectively.

Rules

1. Sender of the first correct entry drawn on September 19, 1986, will receive the £125 voucher.
2. You may photocopy the form but only one entry is allowed per reader.
3. The judge's decision is final. No employees of *ACU* may enter.

JEWELS CONTEST ENTRY FORM

Answers

1. ________________

2. ________________

3. ________________

Name ________________

Address ________________

____

____

Send your entry to: Jewels Competition, Amstrad User, 169 Kings Road, Brentwood, Essex CM14 4EF.

POWER TO YOUR AMSTRAD PCW8256

POWER PACK A — EXTRA 256K RAM

INTERNAL UPGRADE! NO SOLDERING! NO WIRING! NO MESS!
SIMPLE TO FIT BY YOURSELF! OR WE CAN FIT IT FOR YOU!

£59 KIT FORM OR **£69** INCLUDING FITTING

POWER PACK B — UP TO 2MBYTES

(UNFORMATTED STORAGE CAPACITY)

The **GAMMA DISK INTERFACE** allows you to use external 3½"/5¼" 80 Track Double Sided Disk Drives

ONLY **£49**

Ring us for the best prices on Amstrad products

SPECIAL PACKAGE

GAMMA DISK INTERFACE with

Single 5¼" Mitsubishi Slimline Disk Drive (80T D/S)	**£199**
Single 3½" Mitsubishi Ultra Slimline Disk Drive (80T D/S)	**£199**
Twin 3½" Mitsubishi Ultra Slimline Disk Drive (80T D/S)	**£299**

Cut out this coupon and send to:

TECHNOLOGY RESEARCH LTD., Unit 18 Central Trading Estate, Staines, Middlesex TW18 4XE Tel: (0784) 63547

Please send me	QTY	P/P	GAMMA DISK INTERFACE with	QTY	P/P
POWER PACK A (Kit Form)		£4	**Single 3½" Disk Drive**		£8
POWER PACK A (Inc. Fitting)		£8	**Single 5¼" Disk Drive**		£8
POWER PACK B		£4	**Twin 3½" Disk Drive**		£8

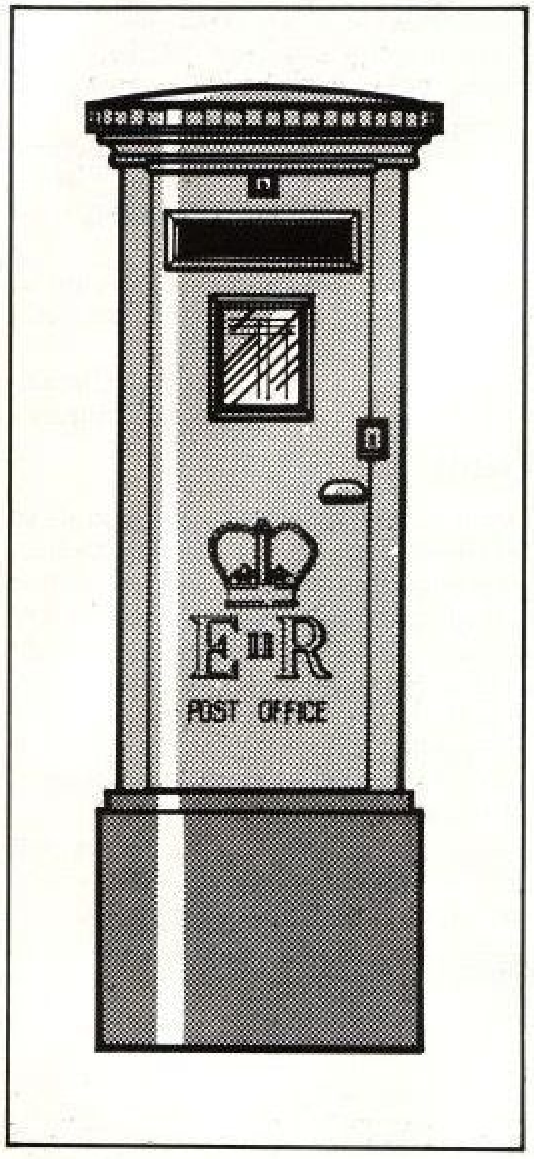
I have enclosed cheque/postal order of the total £ ____________

Name ____________ **Address** ____________

(BLOCK CAPITALS PLEASE) *All prices include VAT and apply to UK only *Special package is subject to availability

Please bear in mind that the views expressed herein are not necessarily those of Amstrad or Amsoft. Be assured that all your views are given thorough consideration. This letters section is the Amstrad Computer User's own forum.

Write to reply



Ex-Speccy has problems with text

Peter Green's ZX Loader program seemed like the answer to an ex-Spectrum user's prayer – a way of getting my old Spectrum Tasword files into a 6128, on to disc, and loaded into beautiful, speedy Protext, without spending hours retyping, or pounds on extra hardware.

Alas! Not so. ZX Loader worked fine. The files loaded into the Amstrad from Spectrum tapes like magic, converted to Ascii file – with some program additions from a sympathetic son – saved on to disc perfectly and typed from disc to screen in both Basic and CP/M, brilliantly.

But when the grand moment came for the file to load to Protext, program mode, only the title appeared. I've searched Protext's excellent manual from cover to cover, but can find no clues as to what's missing. The frustration of being able to read them on screen and do nothing with them is unbearable!

Since I was only interested in transferring binary files, we omitted the part of the program that converts Spectrum screens to the Amstrad Mode 1 screen. As far as I can understand, this should not be the cause of the problem. Are we wrong?

Jane Freeland,
Shirley,
Southampton.

ACU: The problem is caused by the &1A character in the files. You will need to remove these so that Protext can read past this soft end of file.

There are several ways to do this but the easiest way is to adapt Listing 3 from the ZX Loader program, putting a simple FOR ... NEXT loop in at line 125.

Wizard of Oz

I am a fairly recent purchaser of a CPC6128 and a more recent subscriber to your magazine in Australia.

I am quite impressed with the standard of graphics in the Galaxian Revenge game by K.N. Khalique in the February issue, but I would like to see it with joystick control.

In the heat of dodging the bombs and diving Galaxians, the x and z keys take quite a hammering. I have tried to make my own amendments but without any success. Is it possible to obtain the necessary changes to the program for joystick control?

I suppose someone has already pointed out that the score does not restore to zero after each game but keeps adding to previous scores for the same session. This is a minor point which can be easily overcome by the following line:

```
1075 POKE &4F00+L,0
```

Keith Talbot,
Ocean Shores,
NSW 2483,
Australia.

ACU: Can't say we've noticed any problem with the score. The keyboard scanning is done inside the machine code part of the program so is out of reach of a simple change to the Basic program.

Rodent runner

This letter has been typed using my CPC6128 and DMP2000 printer both of which I'm very pleased with. I liked the ZX screen load program in the July 1986 issue of *ACU* as I can use the pictures I've made with my Spectrum.

I went to the London show where I was going to buy the AMX Pagemaker and digitiser but I was disappointed to find it was not available, although full page adverts were in the magazines. I think this is wrong as it's misleading.

I bought a mouse and utilities package but the software isn't foolproof and can crash. I have ordered the Pagemaker but after seeing a prototype of the digitiser I will wait to see some reports on it before buying one. It looked rather flimsy for £80 and the BBC one shown on TV looks a lot more robust although I know it costs more.

I also use my computer to run Cobol. I knew nothing about CP/M until I got my Amstrad. Is it possible to use CP/M in Mode 1?

Trevor Wells,
Forest Fields,
Nottingham.

ACU: Yes, you can change the screen mode by inserting the relevant control codes into the message printed when CP/M is booted. The CP/M SETUP command allows you to alter the sign-on string.

This contains control codes which set the colours of the display. Including ◊D ◊A in this list will start CP/M in Mode 1. However if your software is not configured for 40 columns you may encounter some strange effects.

Discappointed

Having just joined the User Club and therefore become a subscriber to *ACU*, am I now entitled to your cheap discs offer? After all, I can't – or at least am not likely to – subscribe a second time!

Perhaps you can also help me with a query. The CPC464 manual states that one can redefine up to 32 keys and that these can be any keys. The only ones I've been successful in redefining are those of the numeric pad. As I prefer to use these for numbers, I'd rather redefine the numbers on the main keyboard.

Perhaps you can also recommend a book that will take me beyond the manuals, which after all don't take you very far! I have come to suspect that the best way to learn serious programming is to ponce about with games programming. Is this correct? I'm sure my kids would appreciate that.

David Salisbury,
Cuckfield,
Sussex.

ACU: The answer to your first question is, quite simply, no. The User Club is a separate organisation and for your

subscription money we believe you get a discount on the products sold by Amsoft. It is up to you to decide which company offers the thing you want.

Yes, you can redefine all the keys. There isn't enough space to explain it fully here but it involves using the KEY DEF command, in addition to the KEY command, to alter the Ascii values produced by the keys. We think all games programmers are serious about their work and we find books on serious programming boring.

Rambo needs help

To get straight to the point, please could you tell me how to get the second group of prisoners out of the PoW camp in Ocean's Rambo.

I always manage to free the first prisoner, get to the chopper and land back in the camp to free the rest but even if I blow all the buildings up – except the white meshed ones which seem indestructable – I cannopt find the prisoners.

Where are they and how do you release them when you find them?

Reuben Thurnhill,
Burton,
Carnforth,
Lancs.

ACU: *Dunno. Any budding Rambos out there who do?*

Sorry, no competition

In the January issue of *ACU* I read about a competition for the best program of each month. This information was no longer present in the March issue. I would like to know whether this competition still takes place and whether foreigners are entitled to take part in it.

Jariusz Olszewski,
Werszowa,
Poland.

ACU: *The software competition is run by Amsoft and is no longer featured in the magazine. You have to be a member of the User Club to enter and they don't accept overseas members.*

Check out the competition

I intend to buy a computer to handle one specific function and I am interested in either the Spectrum 128 or the Amstrad which retail for around £299. As I am a complete layman regarding computers and I am somewhat distrustful of salesmen I felt I would get an unbiased opinion from yourselves.

My problem concerns The Times daily Portfolio competition.

In this, each competitor holds a card listing eight numbers. Every day a list of shares numbered 1 to 44 is published and a target shares gain figure is set. If the total gains of the eight shares corresponding to the eight numbers on a card match the target figure, then that card holder wins a prize.

I usually check cards for my family and work colleagues but having now acquired 25 of these I find it is taking me approximately one hour a day to check all the cards. Hopefully, by using a computer I can reduce this wasted time.

What I would need to do is feed in the price variation for each share, daily, and produce a daily sub-total for each column. Every six days I would need to recall the preceding five days' sub-totals from the memory and produce a weekly total for each column as a weekly target is also set. The computer memory could then be cleared to retain only a record of which numbers are on each card.

P.S. Anley,
Chiswick,
London.

ACU: *If you were to write a program yourself to do this, either computer would be suitable. But you might be able to use a commercial spreadsheet in which case the Amstrad has the better choice.*

Where do they go?

Can you please tell me where I can buy empty cases for my many discs which did not come in such containers?

I have tried several Amstrad suppliers and they tell me they know of no-one who stocks such things.

M. Berris,
Radlett,
Hertfordshire.

ACU: *Our problem is usually the reverse – ending up with a heap of plastic containers and no discs. Assuming that a plastic container is made for every disc, there must be a huge mountain of empty cases somewhere.*

If you have a witty theory about where they are or what they're being used for then write and tell us.

You've used the language, now get the book

In the June issue of *ACU* there was a letter from Gill Ashley Smith. A book which I got from my local library might help, called Logo for Micros by Martin Lesser, published as one of the Newnes Technical Books by Butterworth, Sevenoaks, Kent in 1985 at £8.75.

Hugh D. Hemmer,
Blythe Bridge,
Stoke-on-Trent,
Staffs.

A pain in the GSX

Please help a very frustrated but enthusiastic 6128 user. I bought DR Graph and found the instructions on setting up the printer output routines baffling to the point of being useless.

With a friend and after many hours of futile copying and swapping of files we eventually succeeded in producing plots on his DMP2000.

For any other innocents who are faced with weaving in and out of the buck passing approach of the DR manual, which refers the user to the "GSX documentation", here is the simple but undisclosed procedure for printing graphs previously produced on the screen.

1. Copy from the CP/M system disc the complete Assign Sys file.
2. Rename "DDFXHR8.PRL" to "DDFXLR7.PRL"

That's it, the system works on a DMP2000! Regrettably this did not work on my GLP Centronics printer.

P. Lomas-Clarke,
Redhill, Surrey.

Ouch!

I want to buy The Hitchhiker's Guide to the Galaxy but I own a CPC464 with disc. Your magazine says this does not matter as it will run on all Amstrad disc systems, but NewStar says it does matter because it will only run on the 6128 and the Joyce. Who do I believe?

Secondly, does Amstrad's takeover of Sinclair mean that I have to treat Speccy owners as equal human beings?

And finally, could you please not publish letters from lorry drivers who can't spell properly, Australians who do such heretical things as using 5in drives as drive A – they'll be using microdrives next – and Icelanders who are too clever by half.

Robin Newton,
Cambridge.

ACU: *A CPC464 version of Hitchhikers will be available "real soon now" from Activision. As for your second question, it's worse – they've started treating us as "normal". And lastly, what about letters from Cambridge smart Alecs?*

Computer readable texts

I read the March issue of *ACU* with much interest, particularly in relation to the Dart light pen and Grafpad II.

Is it possible to hand-write or hand-print text – such as letters, essays and so on – which could then be legibly printed out in typeprint on a printer? Is it a question of devising a software program for this application, or are more complex technical problems involved?

Sean Smith,
Maynooth,
Co. Kildare.

ACU: *Well, all we can say is that the Post Office tried and failed. Perhaps you should be reading Cray Computer User and someone will probably announce a version for the Spectrum next week.*

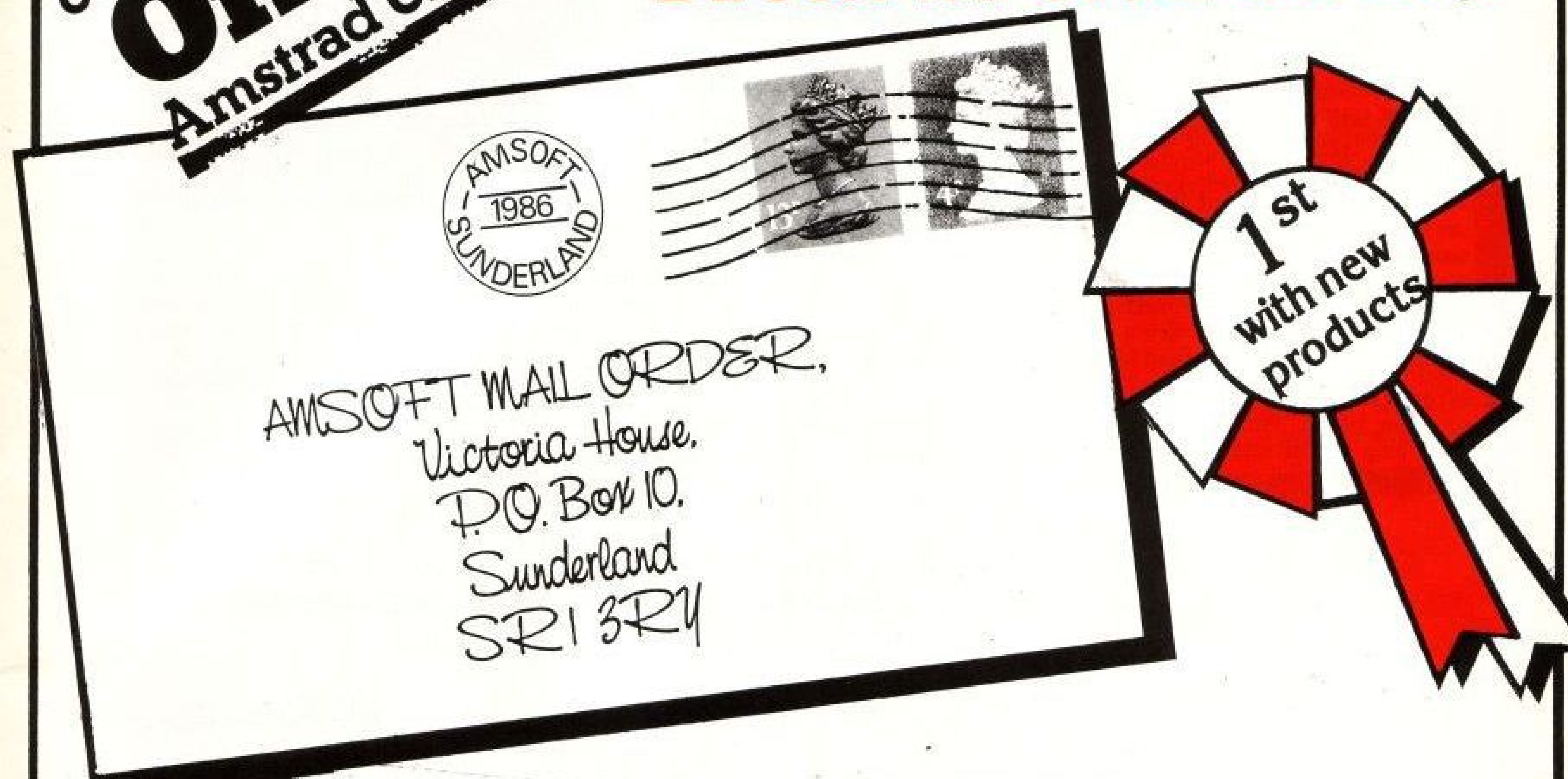
ACU

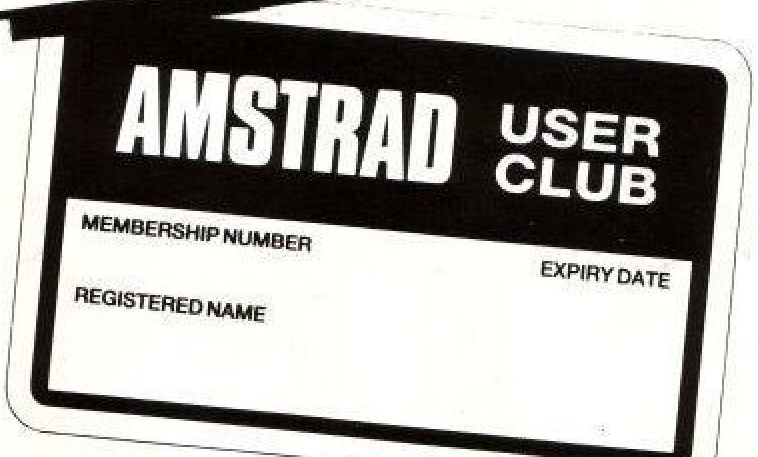
Lazahold Ltd
trading as

Amsoft

only **Official** Amstrad User Club

If You're Having Problems Finding the Full Amstrad/ Amsoft Range Of Software And Peripherals, Try Our Direct Mail Order Service.





DON'T FORGET

If you join the user club you get 15% discount* on your purchases by mail order.



Telephone us for a faster, easier service.
Orders using credit card (Access or Barclaycard)
0783 673395 9am-5pm Monday to Friday

VISA

Access

Send for FREE information

Complete this coupon and return it to the address shown on the envelope

*Approximate discount on most items, see price list for details.

DELIVERY ONLY WITHIN U.K. (excluding BFPO, Channel Isles)

Lazahold Ltd, trading as Amstrad User Club and Amsoft

I would like full details of Amsoft Mail Order and the Amstrad User Club Software Catalogues, Sales Leaflets, and order forms.

Name ....

Address ....

....

....

.... Post Code ....

News FROM THE AMSTRAD PROFESSIONAL USER CLUB

AUGUST 1 marked the launch of the first official Amstrad Professional User Club. The new club is designed exclusively for the business user as opposed to the home user.

It offers the business and professional user the ongoing support vital to the successful operation of his business.

Discounts

For the very first time the Amstrad business user has a central point from which he is able to obtain a wide range of software – much of it at discounts unavailable anywhere else.

Also available are attractive discounts on peripherals and consumables, that is stationery, ribbons, discs and the like.



Club chairman John Ainsworth: "Business software at big discounts"

New magazine

Members of Amstrad Professional User Club receive by post every month the new monthly magazine, *Amstrad Professional Computing*. It is the only official Amstrad magazine aimed specifically at business users.

Club members can look forward to the magazine arriving regularly on their desk as one important benefit of being members of the club.

Armchair purchasing

To place their orders, members merely have to pick up the telephone. All products are rigorously quality checked.

Members can reasonably expect to have their orders fulfilled within the week.

Extended opening hours

Members can now place their orders with the Amstrad Professional User Club from Monday to Thursday 9am to 8pm, Friday 9am to 5.30pm and Saturday 9am to 1pm.

Therefore business members need not sacrifice valuable working time. They can place their orders at the end of the working day, for example.

Monthly Newsletter

The new club has engaged a number of writers on a variety of business and professional subjects. Articles will appear in a monthly Newsletter sent, free of charge, to all members.

It is envisaged that the newsletter will include important financial information of value to businessmen and women on such subjects as recently announced Government legislation, new products, development of existing products and interesting application stories.

Articles by members themselves will also appear.

There will then be the opportunity for a dialogue between the Amstrad Professional User Club and its members throughout the United Kingdom.

Hotline

The club provides a Hotline for members to obtain help and advice where this service is not provided by the original supplier.

This applies to all business products supplied by the club.

New products

A recent visit to the high security area of the club's well appointed Sunderland premises suggested that members can look forward to a whole new range of useful products very soon.

The researchers' brief includes an instruction to provide high quality business solutions across the whole spectrum of industry, commerce and the professions.

The club strongly believes that one of its major functions is to help its members derive maximum benefit from their investment in computing – irrespective of their particular discipline.

Annual club subscriptions are: £39.95 for existing Amstrad User Club members and £49.95 for new members.

Ring 0783 673395 now for more details and an application form

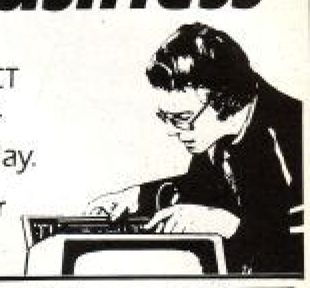
WARNING BUSINESS USERS

COMPUTER BREAKDOWN CAN STOP YOUR BUSINESS IN IT'S TRACKS

CAN YOU WAIT 2 WEEKS OR MORE FOR REPAIRS?

We GUARANTEE to get you back in business in 3 WORKING DAYS!

8256 ONLY £29.95 }
8512 ONLY £39.95 } FOR 12 MONTHS SERVICE CONTRACT & PEACE OF MIND.



We collect by Securicor COURIER at our expense — We receive next morning — We repair and return same day.

Phone or post the coupon for a Service Contract Form — before it's too late! Or send your remittance together with the machines serial numbers and we will return the Agreement with your receipt by return.



SPECIAL OFFER

8256 .... £373.04 (£429.00 INC. VAT)

8512 .... £460.00 (£592.00 INC. VAT)

256K UP-GRADE
NOW ONLY **£34.95**

8256 UP-GRADE ~~£222.00~~
TO FULL 8512 SPEC INC. DISC DRIVE & MEMORY.
£179.95 VAT & P.P.

ELECTRIC STUDIO LIGHT PEN
FOR GRAPHIC DESIGN ONLY **£65.00**

Special Offer

BASIC DRAWING* PACKAGE
D.R. DRAW & ELECTRIC STUDIO LIGHT PEN
WAS £129.90 **£99.90**

IBM COMPATIBLE NEW P.C.
PHONE FOR DETAILS

POCKET WORDSTAR
SAVE £10
ONLY **£39.95**

SPECIAL OFFER
TASWORD 800 }
TASPRINT 8000 } **£29.99**
~~£39.90~~

SPECIAL OFFER
D BASE II
WAS £119
NOW **£99.95**

BOOKS

Mastering the PCW 8256	**£8.95**
Soul of CPM	**£14.95**
CP/M Software Bus	**£8.95**
CP/M Bible	**£15.95**
Amstrad Word Processing PCW 8256	**£8.95**
Introduction to Amstrad CP/M Assembly Language	**£9.95**
Using the PWC 8256	**£9.95**
CP/M Handbook	**£14.95**

HARDWARE

RS232/CENTRONICS I/F	**£59.95**
FD2 (2nd Disc Drive) IN STOCK	**£169.95**
256K RAM UPGRADE	**£34.95**
EXTENSION LEAD SET	**£14.95**
DUST COVER	**£14.95**
PRINTER RIBBONS PCW 8256/8512	**£5.95**
3" DISCS SINGLE DENSITY/10	**£39.95**
AMSTRAD DMP 2000 PRINTER	**£149.95**
AMSTRAD 6128 GREEN SCREEN	**£279.95**
AMSTRAD 6128 COLOUR SCREEN	**£369.95**
AMSTRAD 464 GREEN SCREEN	**£179.95**
AMSTRAD 464 COLOUR SCREEN	**£279.95**
10MB HARD DISC	**£516.35**

PRINTERS

MP165 165CPS DOT MATRIX	**£239.95**
DAISY JUNIOR DAISYWHEEL	**£199.95**
BROTHER HR15	**£399.95**

SOFTWARE DISCOUNTS

OR REGULAR PRICES IF YOU WOULD LIKE TO TAKE ADVANTAGE OF OUR HELPLINE SERVICE. PLEASE PHONE FOR FREE ADVICE ON THE MOST SUITABLE SOFTWARE FOR YOUR COMPANY.

FOR THE KNOWLEDGEABLE*

LEISURE

Bridge	£17.95
Hitchhikers Guide	£25.00
3D Clock Chess	£17.95
Heroes of Karn	£15.00
Batman	£14.95
Invaders	£8.95
Lord Of The Rings	£21.95
Sea Stalker	£19.95
Planet Fall	£19.95
Zork 1	£19.95
Deadline	£19.95

EDUCATIONAL	WITH HELPLINE SUPPORT	WITHOUT HELPLINE SUPPORT
Locoscript Tutorial	£9.95	**£7.95**
Ian Key Typing Course	£24.95	**£22.95**
Ian Key Two Finger Typing	£24.95	**£22.95**
Touch N Go	£24.95	**£22.95**
Hands-On CP/M Plus	£24.95	**£19.95**
Hands-On Supercalc	£24.95	**£19.95**
Hands-On dBase II	£24.95	**£19.95**
COMMUNICATION		
Sage 'E'-Mail	£69.95	**£62.95**
Sage Viewdata	£69.95	**£62.95**
Modem with Viewdator OR 'E' Mail	£199.95	**£179.95**
Modem with Viewdator AND 'E' Mail	£239.95	**£214.95**
WORDPROCESSING		
New Word	£69.00	**£62.10**
Pocket Wordstar	£49.95	**£39.95**
Pocket Spellstar	£24.95	**£22.95**
Tasword 8000	£24.95	**£21.95**
Tasprint 8000	£14.95	**£12.95**
Prospell	£29.95	**£26.95**

DATABASES	WITH HELPLINE SUPPORT	WITHOUT HELPLINE SUPPORT
Gemini Data Gem	£39.95	**£35.95**
Camsoft Cambase	£49.95	**£44.95**
Pocket Datastar	£49.95	**£44.95**
Pocket Reportstar	£39.95	**£36.95**
Cardbox	£99.95	**£89.95**
Delta	£99.95	**£89.95**
Sage Retrieve	£69.95	**£62.95**
Sage Magic Filer	£69.95	**£62.95**
Microfiler with Microword	£49.95	**£44.95**
Condor 1	£99.95	**£89.95**
Matchbox	£29.95	**£26.95**
Compact Nucleus	£99.95	**£89.95**
SPREADSHEETS		
Supercalc 2	£49.95	**£44.95**
Cracker	£49.00	**£44.95**
Multiplan	£69.00	**£62.95**
Scratchpad	£69.99	**£62.95**
Pocket Calcstar	£49.95	**£44.95**

GENERAL	WITH HELPLINE SUPPORT	WITHOUT HELPLINE SUPPORT
Target Task	£99.95	**£89.95**
Brainstorm	£49.95	**£44.95**
Smart Key II	£49.95	**£44.95**
DR Pascal	£49.95	**£44.95**
DR C Basic Compiler	£49.95	**£44.95**
DR Draw	£49.95	**£44.95**
DR Graph	£49.95	**£44.95**
Write Hand Man	£29.95	**£26.95**
ACCOUNTS PACKAGES		
Compact Sales & Invoicing	£69.95	**£62.95**
Compact Sales Ledger	£69.95	**£62.95**
Compact Stock Control	£69.95	**£62.95**
Compact Sales Ledger	£69.95	**£62.95**
Compact Purchase Ledger	£69.95	**£62.95**
Compact Nominal Ledger	£69.95	**£62.95**
Compact Integrated Acts	£199.99	**£179.95**
Compact Daybook	£49.95	**£44.95**
Camsoft Stock	£49.95	**£44.95**
Camsoft Sales Ledger	£49.95	**£44.95**
Camsoft Purchase Ledger	£49.95	**£44.95**
Camsoft Nominal Ledger	£49.95	**£44.95**
Camsoft Invoicing	£49.95	**£44.95**
Camsoft Stock/Invoicing/Sales	£99.95	**£89.95**

ACCOUNTS PACKAGES	WITH HELPLINE SUPPORT	WITHOUT HELPLINE SUPPORT
Sage Popular	£99.99	**£89.95**
Sage Popular Plus	£149.95	**£139.95**
Sage Combo	£149.99	**£134.95**
Sage Super Combo	£199.99	**£179.95**
Quest Cash Trader	£99.95	**£89.95**
Quest Cash Trader/Analyser	£149.95	**£134.95**
Shoebox	£149.95	**£134.95**
Time & Cost Recorder	£69.95	**£62.95**
Cambase Stock/Invoicing/Sales/Purchase/Nominal	£149.95	**£124.95**
Map Integrated Accounts	£149.95	**£124.95**
Sandpiper	£149.95	**£124.95**
PAYROLL		
Compact	£99.95	**£89.95**
Cam Soft	£49.95	**£44.95**
Sage	£69.95	**£62.95**

ALL PRICES INCLUDE VAT. POSTAGE AND PACKAGING.

EXPERT SYSTEMS
NORTHAMPTON NN1 1BR
Tel: (0604) 24463

Please send me the following items:–

Qty	Product	Price (inc VAT)
	TOTAL	

Name Mr/Mrs/Miss ____________

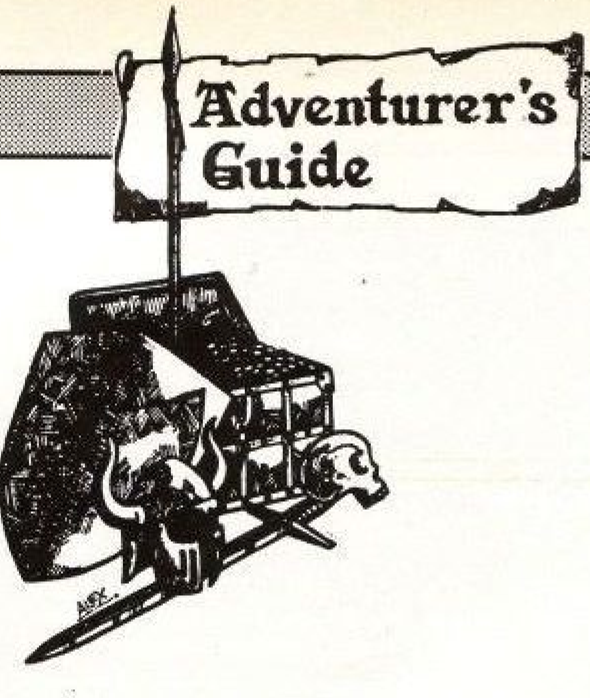
Address ____________

Postcode ________ Tel. No. ________

Send to: FREEPOST
EXPERT SYSTEMS
NORTHAMPTON NN1 1BR
Telex No. 311389 Tel: (0604) 24463

I enclose (please tick) ☐ cheque/p.o. or, please debit to my ☐ Access ☐ Visa card

EXPERT SYSTEMS



SEEK AND YE SHALL FIND...

Into adventures with Bill Brock

The emergence of new software houses entering the field of adventure games has got to be a healthy sign for avid explorers of this genre. This is in part due to the use of such utilities as Gilsoft's The Quill and Incentive's Graphic Adventure Creator. No longer are good adventures the sole property of experienced programmers who have spent years developing their own adventure operating systems.

Anyone with a flair for devious thinking can now put their thoughts to good use with these adventure creators. They are fairly simple to use, and both support graphics routines which may be incorporated within the text. Even with such aids creating a good adventure is no overnight task.

Planning is the watchword, and much midnight oil and many reams of paper will probably be used before the adventure creator program is even loaded into an Amstrad.

There are one or two minor drawbacks to the use of these programs. They utilise memory less efficiently and they are generally less flexible in operation than more individual systems. Also they will usually only accept fairly simple variations on a verb/noun input.

The lack of memory can be overcome quite simply by splitting the adventure into two or more separate parts, saving the player's position and more importantly their possessions prior to loading in the next part. Lack of flexibility in the game play can be masked to some extent by the author's presentation of the scenario and the computer's responses.

A number of quilled adventures have reached the Top Ten adventure charts and GAC games will almost certainly follow this path in the months to come. Writing adventures is every bit as enjoyable as playing them – why not have a go, you could even have a future Top Ten hit buzzing around in your mind right now.

The following three adventures all saw the light of day via a creator program, and only go to show just what can be done with these useful and money-making utilities.

Qor newspeak

Maltdale's first game in the software jungle is an adventure called Qor, written using GAC. It is set in the far future with the player controlling a special agent-type called Jo Steam.

Jo works for SUC – Supreme Universes Command – who have reason to believe that the ruling pirate junta on the planet Qor are up to no good. The pirates have been obtaining high level military computer equipment and SUC HQ fears the worst.

The space around Qor is heavily monitored, so the only safe way to get on the planet and infiltrate the computer complex will be aboard a Qor spacecraft. Fortunately one of the pirate leaders attacked and exiled a noble of Qor – treachery is far from dead. SUC has managed to get Jo aboard the ship of this exile, who is about to launch a retaliatory raid on Qor.

To avoid detection Jo must remain in character during the attack on the pirates base – any treasure he finds will count towards the player's score – drop it by the treasure bag. After the raid he must steal an air-raft and make his way to the capital city and destroy the computer complex.

Qor is available on disc for the 6128 or 664 – but not the 464 – and on cassette for all three. The adventure is in two parts, the second starting after Jo has stolen the air-raft and is on his way to his final objective.

Set in the future the language has degraded further than it has today, becoming very colloquial and loose in its grammar. Once used to the style I found it entirely in character for Jo, but I hope other writers do not use this as an excuse for poor spelling.

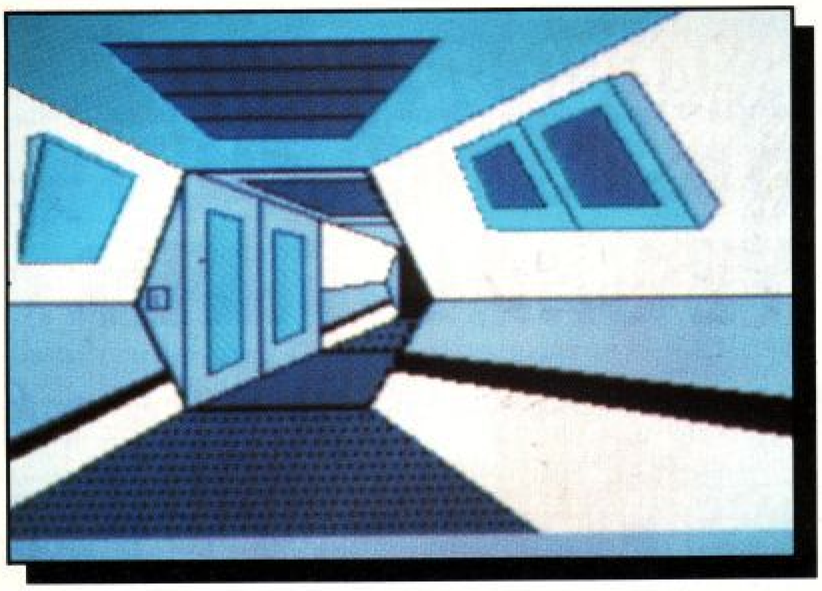
Commands are given in the accepted verb/noun format with several single letter inputs also understood – O, OUT; I, IN; L, LOOK; Q, QUIT; G, GET; C, CARRY; together with all normal direction commands N, S, W, E, D, U.

Take note of the command SEARCH, which is not the same as EXAMINE. SEA – commands may be abbreviated to three letters – should be used fairly often because on occasions you will find objects that are otherwise hidden.

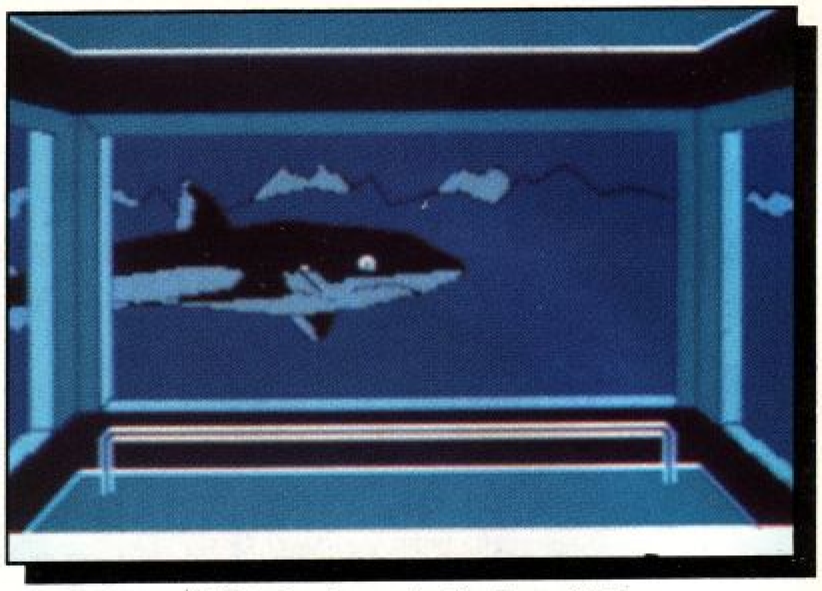
As there are a number of ways in which Jo's mission can come to an untimely end it is wise to SAVE the game position fairly often. The lengths of time Jo is on the spaceship and raiding the pirate's base are both limited. To gain maximum score you may have to replay these sections once you have learnt what is expected of you.

This is a quite interesting game with an atmosphere that shows promise for the future. There are not many things to find and some parts are not very logical – QVMM USVOL! Puzzles are initially more about finding how the game works rather than finding a solution to a particular problem. The graphics range from reasonable to good and are drawn quickly.

The price is a little high in comparison with other games that provide more of a lasting challenge. Let's hope that having learnt from this one Maltdale follows Qor with many more adventures.



Submarine architecture at its best . . .



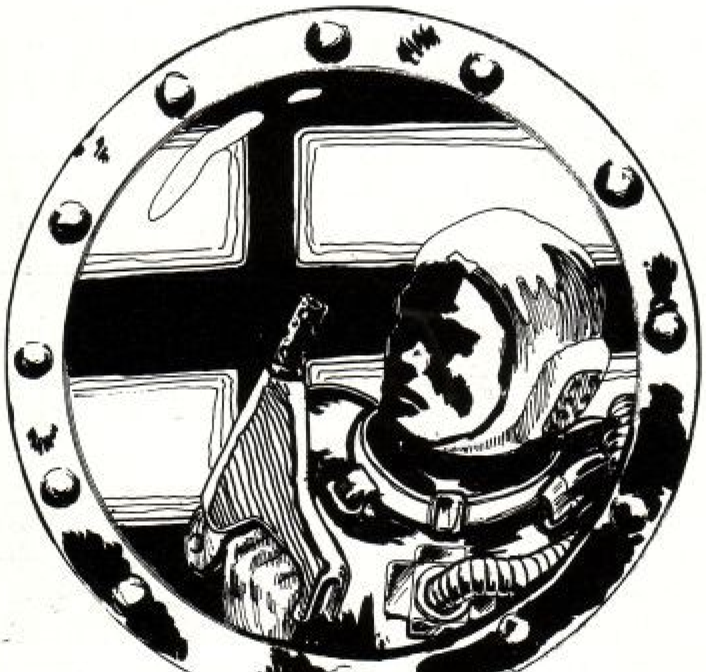
. . . and some fishy business in Seabase Delta

Underwater romp

Seabase Delta, a text and graphics adventure from Firebird's Silver Range, costs only £1.99. It was written using The Quill and The Illustrator, and is the sequel to an earlier game called Subsunk.

You play the part of intrepid reporter Ed Lines, who finds himself deep under the ocean in the headquarters of a nefarious gang of crooks. There has been an outbreak of a highly dangerous disease and the place is deserted. Before dying one of the gang sets in operation the countdown for the launch of a nuclear missile. Friend Ed is the only hope for the civilized world.

At this price every adventurer should have a copy. The graphics are good, even if they do tend to repeat in



different colours for different locations – at least you know where you are. The command parser looks only for a verb/noun construction, and the vocabulary does not give the impression of being large.

The game is very logical, and is sufficiently involved to give the more experienced gamer pause for thought and the novice a good introduction to what will be expected in the future.

With so many full screen graphics the text description and the number of the various locations suffers slightly, but the almost clinical atmosphere of an underwater base comes over very well.

My only real criticisms are the fairly long dramatic pause when something is about to happen, and the automatic redrawing of the pictures every time an object is found. Both of these effects are programmed-in rather than a fault of the system and can become frustrating as the player champs at the bit to get on with the game.

Although you should always map an adventure Seabase Delta has its locations set out in a sequence where this is hardly necessary. The instructions are fairly rudimentary, but are supplemented by reading the documents found in the briefcase at the first location. From then on sit back and enjoy yourself.

For the most part the objects found immediately suggest a possible use – you just have to find the right time and place. This game is very much like the ideal crossword puzzle – once you have solved a problem you will want to kick yourself for not having seen the answer earlier.

Sher . . . who . . . what

CRL is becoming well known for marketing adventure games with a difference. First we had Bored of the Rings, a marvellous satirical spoof on Lord of the Rings, and there is also a wonderful parody of the original classic cave adventure, The Very Big Cave Adventure, with none other than Trixie Trinian as your guide and mentor.

Right now we have Robin of Sherlock, written by Delta 4. This is a grand farce of a mixture, that includes Smurphs, Hurn, British Rail, Dorothy and her dog from The Wizard of Oz, and a rather strange Friar. To top them all there is an odd mongrel wearing Lincoln Green and answering to the name of Robin, but sporting a deerstalker, a meerschaum, a violin and holding a magnifying glass.

If you like crazy mixed up plots this has got to be the one for you. It is another quilled game with a fair splattering of graphics. To overcome the limitations of what can be crammed into the memory on top of the Quill operating system Robin of Sherlock is split into three parts.

The instructions say that you may move freely between the different parts by saving your game position before stepping from one to the other. Although this is

not untrue care must be taken in determining which part you are going to and noting that a saved position may only then be loaded by entering that stated part.

The SAVE game facility may only be performed at these points – at any other time you may use the very rapid RAM SAVE option.

There appears to be no one specific task set for our Lincoln Green sleuth – more a series of crimes to be solved as he wanders around Sherwood and points north. He may TALK TO the characters he meets and quiz them by following this command with TELL ME ABOUT...

Robin of Sherlock will provide hours of zany amusement for any depressed adventurer, and is thoroughly recommended.

Time to spare?

An age or so ago there was a computer called the BBC Micro. For this machine of the tiny brain were conceived some particularly potent adventures. Two of which – Philosopher's Quest and Countdown to Doom – still cause sleepless nights to those who attempt them. One enterprising software house is in the process of giving Amstrad users the chance of a similar form of insomnia.

Global software sought out and finally found the source of these horrific tortures. Fortune smiled, and in the manner of such wondrous quests they also unearthed an as yet unseen magnetic anomaly called Monsters of Murdac.

Available on both disc and cassette and for any Amstrad this text-only game is a must for those adventurers who like banging their heads against brick walls.

The game is in the classic mould with the player starting outside a flint hut, around which are some 12 locations to explore. Inside the hut are stairs down to an underground realm. There is nothing new in any of this and most traditional adventurers will immediately feel

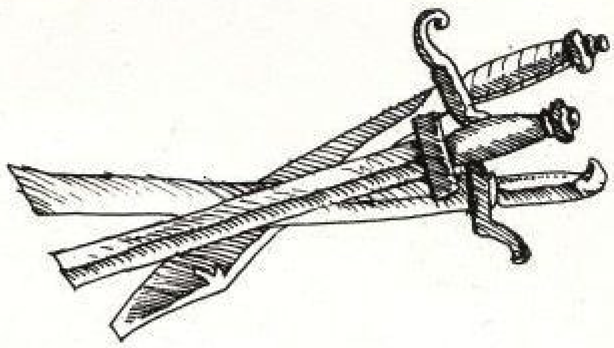


quite at home with this scenario. They may even feel confident that they know what to expect. Well...

The location descriptions are lengthy, full of atmosphere and should be read carefully. There are a number of puzzles, some of which are interlinked – usually by the need to use an object in more than one way.

There is treasure to be found, quests to be solved and plenty of locations to explore while trying to find out the extent and purpose of the various traps and puzzles.

Mapping your progress is vital as there are a number



of places that can prove fatal without the necessary protection. A good knowledge of the obvious terrain should be gained before trying to solve any of the major problems.

There are two new forms of mazes that have to be mapped before you can achieve maximum points, so the old grey matter will be kept ticking over at quite a rate of knots.

Input commands may include complex sentences such as DROP ROD THEN TAKE PLANK AND GO SOUTH and DROP ALL BUT THE LAMP. A series of

Helpline

We are slowly building up a record of those who have solved several adventures and are willing to help others in difficulty. If you are stuck write to Bill Brock who may be able to supply a cure for those headaches. Likewise if you wish to join the Help League write to Bill. Don't forget to include a stamped addressed envelope.

commands may also be linked together by commas to be performed sequentially – IN, D, NE, SE, IP...

One command missing from the normal adventurer's arsenal is EXAMINE, and any hints to an object's use will be found within the text – or the player's mind. Good examine routines take up many thousands of bytes of memory, and those saved here are put to good use in the location descriptions.

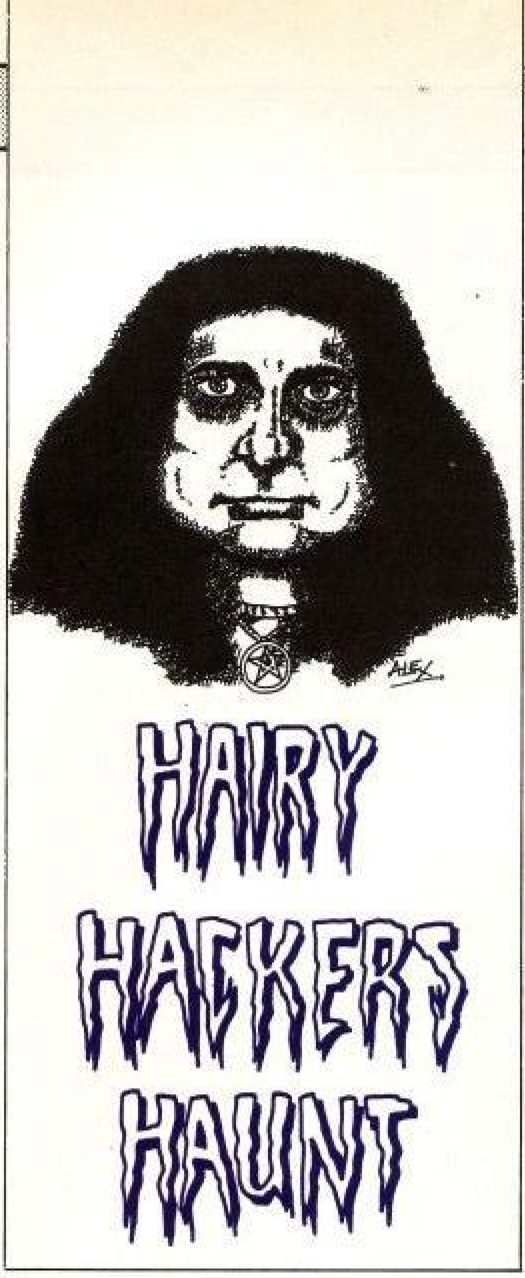
The disc versions also have a Help facility. To get the most out of this you will also need the Hint sheet, available from Global. This enables you to call up a numbered hint for a given situation. These hints are not full answers to a problem, but with a bit of thought will prove their weight in Erbium.

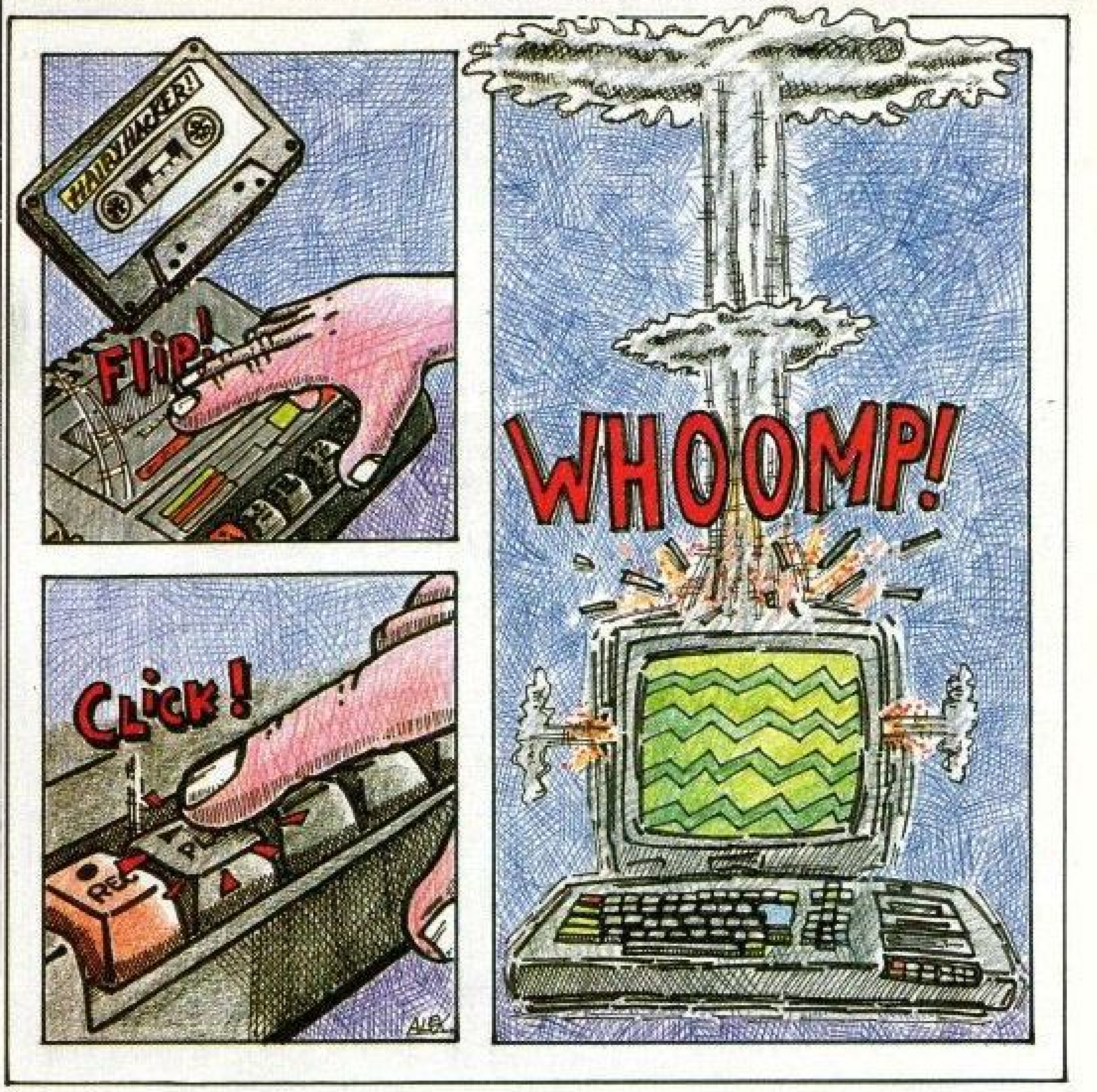
Rescuing a wizard's daughter, taming a lion, escaping alive from a haunted house and outwitting the Old Man of the Sea are just a few of the problems you will meet. The puzzles are on the whole reasonably logical, but are devious and often have a false end. Beware of thinking you have solved a problem just because you have caused something to happen.

Judicious use of the SAVE facility is recommended – just to avoid repeating the initial moves after a fatal accident later on. Do explore outside the hut very carefully – there is more here than first meets the eye.

Monsters of Murdac is well worth playing, whatever your level. It is unlikely that it will be solved quickly, so have some other games handy to play while you let your subconscious ponder on its puzzles.

ACU





Perky pokes and jivey joysticks

More hax from VAX, the man behind the monitor, person behind the pokes

Multitudinous greetings and messages of goodwill, fellow hackers. Right, happily and hairily hacking away we go, in a month where Manic Miner got the willies, Biggles got flown past, Roland got Spaced, Screen Designer got drafted, Jack got bombed and Knightshade got even shadier. Well, on with the foul deeds, and we'll see what came in through the back door for us this month.

First off, I would like to make an impassioned plea, no more Manic Miner pokes. We have big pokes, small pokes, some as big as your head. Pokes in the drawers, filing cabinets, cardboard boxes, the fridge; the cat's sick to death of Manic Miner pokes (Meoooow, Hack!, Hack!, Thud !). So, to staunch the flow, here they are, for the last and positively the final time, OK ?

```
10 REM THE LAST AND FINAL EVER
20 REM MANIC MINER POKES, OK ?
30 MEMORY 20589
40 LOAD "MANMIN15"
50 POKE &6F8D,9:REM NO. OF LIVES
60 POKE &6FA9,0:REM INFINITE LIVES
70 POKE &7401,24:REM SWITCH SCREENS WITH
   ESC
80 POKE &713E,0:REM FALL FROM ANYWHERE
90 POKE &7311,0:REM INFINITE AIR
100 CALL 20590
```

Wind past the loader, type this little lot in, and RUN it. Apologies for all those people who have seen the same pokes scrawled over walls with dayglo paint in cities all over the world, but there are always some who haven't.

Moving to more pleasureable things (though not quite that pleasureable, as the Ed. would cut it out) we have a poke at ER*BERT. Remember him, like an old bicycle horn leaping up and down the Great Pyramid of Giza? Well, S. Russell does. Here is his way of getting more out of your Erberts:

```
10 MEMORY 16383
20 LOAD"!ERBPROG",16384
30 POKE &4A1B,0
40 CALL &67B3
```

Run this, and play your tape. The original, of course.

Bombing campaign

Now we have a poke at Bomb Jack (apart from the one in the opening paragraph). Now you can leap and bound about, saving the world from the phantom bombers at absolutely no personal risk whatsoever. By the way, thanks to Elite for not putting any fancy protection scheme on their game, it makes life much easier for all concerned. Here's the new loader:

```
1 REM The Hairy Hackers Bomb Jack Pokes
10 MEMORY 5999:BORDER 0:CLS:FOR f=0 TO 1
   5:INK f,0:NEXT f:MODE 0
12 LOAD "!bjscreen.bin",49152:FOR f=0 TO
    15:READ a:INK f,a:NEXT f
14 LOAD "!bjcode.bin",6000
20 POKE 6653,0
30 CALL 6000
40 DATA 1,0,26,8,24,13,11,6,15,16,5,2,6,
   3,20,10
```

Joystick jookerie

Now for some more joystick butchery. The auto-fire option on the Quickshot II joystick is conspicuous by its failure to do anything except cause the keyboard to sieze up. The reason it doesn't work on

the Amstrad flotilla is that it wants five volts where the second fire button is. If you savvy the technical term "short", you get the idea of what's going wrong. The bonus is, the wiring for the second fire button is nearly all there.

Flushed with success over the JY-2 hack, I dug out my Quickshot and dismembered it. Remember that this will stuff your guarantee. Here follows the details for a second fire on the Quickshot.

Remove the four screws from the base and put them in your Porsche hubcap or whatever. Pull the circuit board out from the base, and disconnect the red wire. This is the first connection on the edge, and should have 5v written on the circuit board near it. If it doesn't, stop now and put it all back.

If all is well, solder or wrap well a 30 cm length of fairly thin, many-stranded wire to the connector on the end of the wire and wrap the join with insulting tape. I crimped mine on with my teeth, just to be macho.

Remove the three screws from the handle and put them in the other Porsche hubcap. The red trigger assembly is all in one piece, and comes out easily to reveal two push switches on orange wires. The switches are joined together with a couple of small red wires – one of these is ground and we want to cut the other one.

To find out which is the ground, plug the joystick into your computer and wave the bared end of the wire you soldered in on the bared ends of the red wires. The one that produces Zs on the screen is the ground wire. DON'T CUT IT ! Cut the other one in half. Strip the bit of red wire closest to the end switch, pass your second fire wire round the same path as the two orange wires go, and twist it round the bared red wire. Solder the joint if you can, and tape this up too.

Reassemble the thing, thus freeing your hubcaps for other uses, and the top fire button should now make Zs appear on your computer. If not, don't come running to us. The moral is, don't hack it unless you are sure you can 'cos I reckon that the Quickshot is the most tricky of all joysticks to try to put back together again. The trick is to get the little washer in the hole in the middle of the base, and get the two orange wires and your additional wire in the slot down the side of the hole.

By the way, Commando uses the second fire button to launch grenades under the joystick option.

Pokers paradise

Right, on with a few more pokes. This one is for the tape version of Green Beret, a game that really benefits from two fire buttons, one for elegantly knifing people, the other for courteously shooting them. Thanks to The Jaybird Esq. for this one:

```
10 MODE 1:MEMORY 12345
20 b=0
30 FOR n=&BE00 TO &BE25
40 READ a$:a=VAL("&"+a$)
50 POKE n,a:b=b+a
60 NEXT n
70 IF b<>3787 THEN PRINT"Error in your d
   ata":END
80 LOAD""
90 CALL &BE12
100 DATA 21,50,f7,22,3a,02,f3,f1
110 DATA c9,21,00,00,22,07,25,c3
120 DATA 37,bd,21,00,be,22,e3,39
125 DATA 3e,c3,32,e2,39,21,ff,ab
130 DATA 11,40,00,c3,af,39
```

Type it in, save it, run it, and put in your real Green Beret tape. Unfortunately, clever things are attempted on the Green Beret disc, so there are no infinite life pokes for that. Unless of course, you know better . . .

For some really up-to-the-nanosecond pokes here is a helping hand with Jack the Nipper, Nodes of Yesod and the super newie from Elite - Ghosts and Goblins. All from that masterhacker Justin Garvanovic.

Up in space with the game which features Amsmole is Nodes of Yesod. If your spacesuit becomes deflated too often you could do with a bit of this infinite lives stuff. Disc only I'm afraid.

```
5 REM NODES OF INFINITE LIVES
10 MODE 1:BORDER 0:INK 0,26:INK 1,0:INK
   2,9:INK 3,24
20 tot=0
30 FOR x=&BE00 TO &BE23
40 READ a$:a=VAL("&"+a$)
50 tot=tot+a:POKE x,a
60 NEXT x
70 IF tot<>3152 THEN PRINT "error in dat
   a":END
80 DATA 0e,07,cd,0f,b9,ed,43,00
90 DATA 90,21,40,00,11,00,02,0e
100 DATA 42,cd,66,c6,21,1d,be,22
110 DATA d3,00,c3,40,00,af,32,a7
120 DATA 4e,c3,50,4c
130 CALL &BE00
```

The arcade smash Ghosts and Goblins is fun but a trifle on the impossible side. It took the Ed a whole weekend to get to level 2, until Justin rode to the rescue with this progette. Rewind the tape to the start, then type in and run this routine.

```
5 REM GHOSTS & GOBLINS INFINITE LIVES
10 MEMORY &12FF:MODE 0:BORDER 0
20 FOR i=0 to 15:READ c:INK i,c:NEXT
30 LOAD "!p":LOAD "!code",&1800
40 POKE &509B,0:POKE &509C,0:POKE &509D,
   0:POKE &509E,&18
50 CALL &5000
60 DATA 26,13,0,15,24,6,16,2,14,1,3,11,1
   0,9,18,25
```

Justin's final fling this month was with that toddler tearaway Jack the Nipper. Rewind your Nipper tape, type in the routine below and don't be a cry baby. The poke puts an extra baby on the screen and makes the rash bar go funny, don't worry it's all right. Honest, try it.

```
5 REM Nipper zapper by Justin Garvanovic
10 MODE 1:MEMORY &9FFF
20 DATA af,32,0a,20,3e,06,32,13,20,c3,01
   ,10
30 FOR n=&BE00 to &BE0B
40 READ a$:POKE n,VAL("&"+a$)
50 NEXT n
60 LOAD "",&A000
70 POKE &A058,0
80 POKE &A059,&BE
90 CALL &A000
```

Did you know that if you pause 3D Grand Prix with the Esc key, hold down the Ctrl key and type ARTWORK you move to the next circuit?

Memory refresh

Finally, a few oldies (whaddya mean "They're all old"? Come say that to my battleaxe) by Rupert Smith, aged 15 – probably by now aged 16. First off, Pyjamarama:

```
10 MEMORY 8191
20 LOAD""
30 POKE 16087,0
40 CALL 8192
```

Now, Roland in Time:

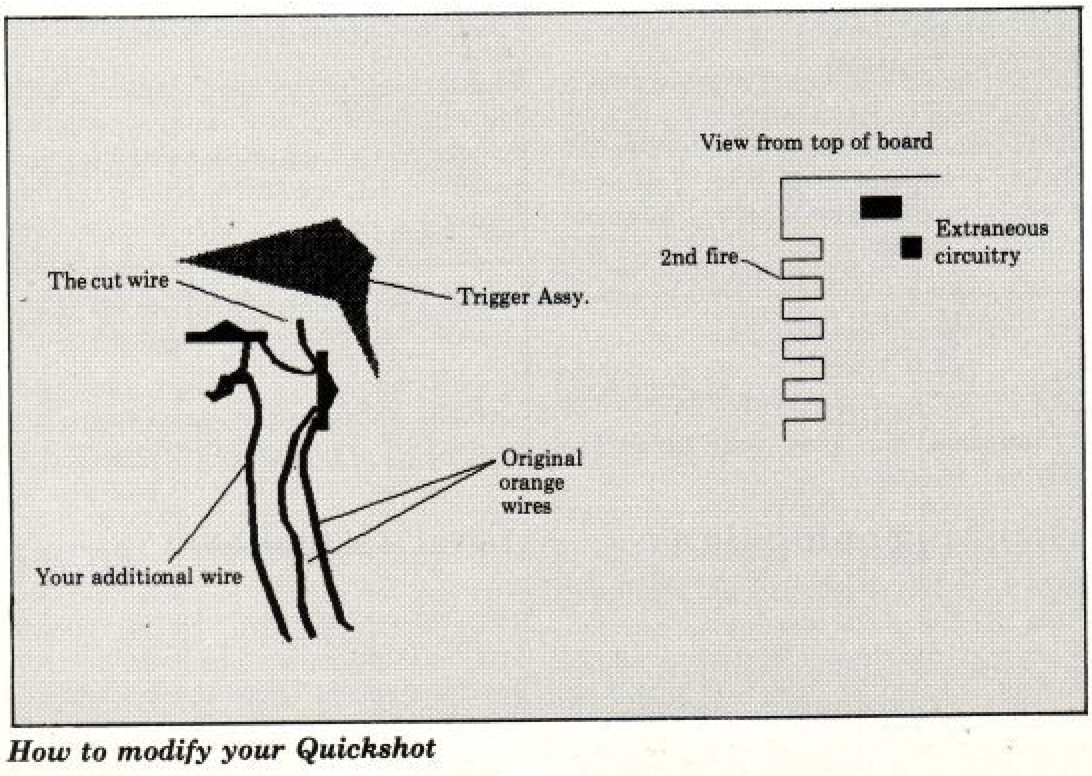
```
10 MEMORY 4999
20 LOAD"ROINTIME",5000
30 POKE 5650,167
40 CALL 5000
```

and plain old Roland Goes Digging:

```
10 MEMORY 17000
20 LOAD"",17800
30 POKE 17978,0
40 CALL 18658
```

Maxam mayhem

Now stuffs fer techies. I am a Maxam fan. There, said it. Do I get a freebie? Two problemettes with Maxam (ah, I won't



How to modify your Quickshot

get the freebie): It don't have a "decent" monitor, and the dissassembler can't feed the assembler. Well, it didn't until recently.

To make a disc file, it is necessary to run VAX's patent printer patcher. This patches the printer routines to output to the disc routines (useful in its own right) and is thoughtfully listed for your entertainment:

```
10 REM ** Weensy bit to patch printer
15 REM ** output to a file by the
20 REM ** Hairy Hacker, 7/7/86
25 REM ** This puts printer output to
30 REM ** a disc or tape file, no
35 REM ** matter what way they use.
40 REM **
45 POKE &BD2B,&C3:POKE &BD31,&C3
50 POKE &BD2C,&95:POKE &BD32,&95
55 POKE &BD2D,&BC:POKE &BD33,&BC
60 REM ** The next line turns the
65 REM ** printer permanently on line.
70 REM **
75 POKE &BD2E,&B7:POKE &BD2F,&C9
80 REM ** Put your own filename in here
85 REM **
90 OPENOUT"filename"
95 STOP
```

This will work in conjunction with last month's screen-to-printer program. It creates possibly the quickest way to fill discs ever invented.

If you have Utopia or similar, you may have some perfectly sensible code to do this already, in which case I apologise sincerely for the waste of space, and in doing so use up more of it.

Run this up the flagpole, load code, go into Maxam, and disassemble your code to the printer. You haven't got one, but don't tell me and I won't tell your printer port.

Hop out of Maxam into Basic, and CLOSEOUT. Oh yeah, don't change discs in between running the printer patch and typing CLOSEOUT, or funny things will happen.

You now have a file containing all sorts of useful information about (usually somebody else's) assembled code. This won't make the assembler feel very happy though as it is filled with hex 'n' stuff. To get rid of this and turn some addresses into labels, use the following program to change the file:

```
100 REM ** To turn a Maxam disassembly
110 REM ** into a form that assemblers
120 REM ** can make sense of again.
130 REM **
140 REM ** By the ever-unpopular
150 REM ** Hairy Hacker, 5/7/86
160 REM **
170 ZONE 9
180 OPENOUT "D":MEMORY HIMEM-1:CLOSEOUT
190 DIM l$(200)
200 INPUT "Name of file to convert ";f$
210 INPUT "Name of file for result ";c$
220 OPENIN f$
230 PRINT "Reading in file."
240 WHILE NOT EOF
250 LINE INPUT #9,a$
260 xl=xl+1:PRINT"Line";xl;CHR$(13);
270 i=INSTR(a$,"&"):IF i=0 THEN 320
280 FOR j=1 TO 3
290 x$=MID$(a$,i+j,1)
300 IF ((x$>"9") OR (x$<"0"))AND((x$>"F"
    )OR(x$<"A")) THEN 320
300 NEXT
310 l$(ln)=MID$(a$,i+1,4):ln=ln+1
320 WEND
330 nd$=LEFT$(a$,4)
340 CLOSEIN
350 FOR i=0 TO ln
255 IF (l$(i)>bgn$) AND (l$(i)<nd$) THEN
     l$(ln2)=l$(i):ln2=ln2+1
360 NEXT
370 'now make an output file
```

```
380 OPENOUT c$
390 OPENIN f$
400 WHILE NOT EOF
410 LINE INPUT#9,a$
420 b$=LEFT$(a$,4)
430 FOR i=0 TO ln2:IF b$=l$(i) THEN 450
440 NEXT:GOTO 460
450 PRINT#9,"L";b$;":";:PRINT "L";b$;":"
    ;
460 'now turn constants to labels
470 a$=MID$(a$,26):p=INSTR(a$,"&"):IF p=
    0 THEN 550
480 FOR j=1 TO 3
490 x$=MID$(a$,p+j,1)
495 IF ((x$>"9") OR (x$<"0"))AND((x$>"F"
    )OR(x$<"A")) THEN 550
500 NEXT
510 b$=MID$(a$,p+1,p+3)
520 FOR i=0 TO ln2:IF b$=l$(i) THEN 540
530 NEXT:GOTO 550
540 MID$(a$,p,1)="L"
550 PRINT#9,CHR$(9);a$:PRINT,a$
560 WEND
```

After all that, you have created a file that can be stuffed back into Maxam, and Maxam will be fairly happy with it. The only thing it really doesn't convince the assembler about is self-modifying code. Solution is left as an exerise to the student.(Cop out - Ed) (Yes!- VAX)

Useful stuff innit? That ought to keep you quiet for a month.

Wanted

Do you have any pokes, hacks, funnies, or secrets that you've discovered? Would you like to share them with us and the rest of the world? Send your pokes to: The Hairy Hacker, Co/ACU, you know the rest.

ACU

OPUS WILL MAKE YOU A BETTER ORGANISER FOR ONLY £60

If your micro system is starting to get out of hand a smart organiser could be the solution to your problems.

At just £59.95 the Organiser desk from Opus Supplies will help to organise your system beautifully. It's purpose built to provide plenty of storage space and because it's produced alongside our range of executive computer desking it offers a level of quality you'll appreciate.

Shelving accommodates your monitor, printer computer, disc drive or cassette recorder and software, and the teak-finished unit is fitted with castors to make it fully mobile. The Organiser's assembled dimensions are: H. 31″, W. 40¼″ and D. 26″.

And our price includes VAT and FREE DELIVERY.

The Organiser desk is suitable for use with all leading home micros including the BBC, Amstrad, Commodore and Sinclair computers.

Getting organised couldn't be easier. Phone us on 0737 65080 or simply post the coupon below.



To: Opus Supplies Ltd,
55 Ormside Way, Holmethorpe Industrial Estate, Redhill, Surrey.

Please rush me the following:
(PRICES INCLUDE VAT AND CARRIAGE)

________ Organiser Desk(s) at £59.95 each (inc. VAT)

I enclose a cheque for £________ or please debit my credit card account with the amount of £________

My Access ☐ Barclaycard ☐ (please tick) no. is: ________

Name ________

Address ________

Telephone ________

ACU9/86

Opus.
Opus Supplies Ltd.

Win a colour telly!



Would you like a new colour television? You could program and watch programmes simultaneously, the ideal thing for your kitchen or bedroom. Just think, you could ogle Ann Diamond over your cornflakes or see the late film from bed.

Amstrad Computer User and Compumart are giving away three Amstrad CTV1401 tellys. Loughborough based Compumart is one of the UK's leading mail order companies, specialising in blank discs – which is why they are offering their 3in Amsoft discs as additional prizes.

There are 25 packs of two discs for runners up.

All you have to do is solve the crossword puzzle below, complete the coupon and return it before September 22. Good luck and have fun.

ACROSS

1. Feline directory. (3)
2. Roland's friend who became the CPC 464. (6)
3. "Syntax"=2. Type mismatch. (5)
4. Firebird game in the High Street. (5)
5. HAL, ZEN, Slave, Orac, Deep Thought, Eddie, Ernie and Robbie. (8)
6. Stop for the last time. (3)
7. Unlocks tedium. (3,5)

DOWN

8. Language degree. As written. (2,3)
9. Careful – it bytes. (6)
10. The PCW 8256's maiden name. (5)
11. Nothing to do. (4)
12. File killer. (5)
13. DATA would be lost without it. (4)
14. Line numbers for cars. (4)
15. Not squared. (7)

RULES

1. Senders of the first three correct entries drawn on Monday, September 22, 1986 will receive a TV set.
2. The competition is only open to readers within the UK.
3. You may photocopy the form, but only one entry is allowed per reader.
4. The judges' decision is final. No employees of Amstrad Consumer Electronics PLC or *ACU* may enter.

COMPUMART ENTRY FORM

Name ______________________

Address ______________________

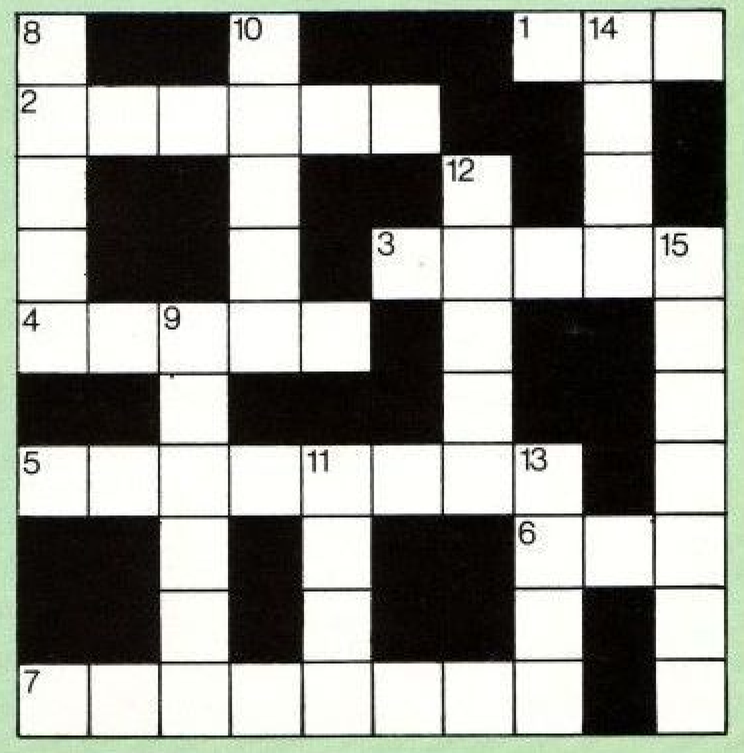
____

____

I have:

- [ ] DDI–1
- [ ] CPC664
- [ ] CPC6128
- [ ] PCW with one drive
- [ ] PCW with two drives
- [x] Please tick box

SEND TO: ***TV Contest, ACU, 169 Kings Road, Brentwood, Essex CM14 4EF.***



256K SILICON DISC





This is the fastest storage system available for Amstrad CPC computers and is compatible with CPM 2.2, CPM+ and all DK'Tronics peripherals including the 64K/256K memory expansions. When used with CPM+ and our 256K memory the edition disc capacity is a massive 442K (more than the PCW 8512 Ram Disc). It automatically logs on as drive B or drive C in two drive systems and does not require extra power supply.

The 256K Silicon Disc is designed to be used with at least one normal disc drive attached. When fitted the directory uses 2K thus leaving 254K for storage, over 70K more than the normal discs.

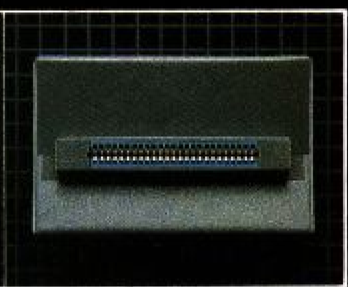
Data and programs can be exchanged between the Silicon Disc and a normal disc, application programs can then work on the data at vastly increased speed especially on systems with only one normal drive.

Software is contained in an expansion ROM and there are two environments in which the Silicon Disc can be used, BASIC under AMSDOS where all the normal AMSDOS commands are fully supported LOAD, SAVE, MERGE, CAT etc and within CP/M 2.2 CP/M+ where commercial programs are designed to run on multi drive systems.

£99.95 including VAT (464 and 6128)

64K and 256K MEMORY EXPANSIONS





The memory expansions increase the Amstrad 464's internal memory to give a total of 128K or 320K. The 621's memory is increased to 320K. It is compatible with all DK'Tronics peripherals including the 256K Silicon Disc.

It is supplied with bank switching RSX software (464 software on cassette 6128 on disc.

The software adds some BASIC commands which makes it possible to use the second 64K (or 3rd or 4th and 5th in the case of 256K) for storage of screens, windows, graphics and basic arrays. This ability means that you can write much larger basic programs and sophisticated programs that use pull-down menus with ease.

With an expansion fitted on the 464 it then has the same memory configuration as the CPC 6128. It will then run CPM+ with its massive 61K T.P.A. area, opening up an even larger software base to 464 users. When using either of the expansions with CPM 2.2 on the 464 and 6128 computer the T.P.A. is increased to 61K.

The RAM is accessed by means of bank switching using a single I/O port. Memory is actually switched in and out of the 64KZ80 address space in 16K sub blocks (as are the ROMS). The port determines which particular combinations of the original four 16K sub blocks and any new sub blocks from the expansion RAM will occupy the 64K address space at any time. All of this switching is done automatically by the software supplied.

The contents of the expansion RAM are retained if the computer is reset and if the RAM is used for machine code the contents will remain even if the computer crashes.

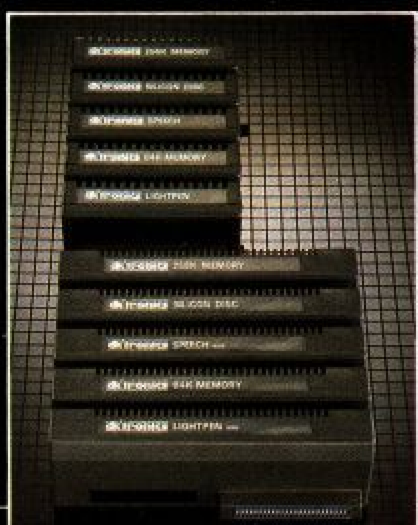
64K **£49.95** including VAT (464 only)
256K **£99.95** including VAT (464 and 6128)





L/E/A/D
FROM E

DK'Tronics have produced this r
enlarge the potential of the 464
and have been designed to cor



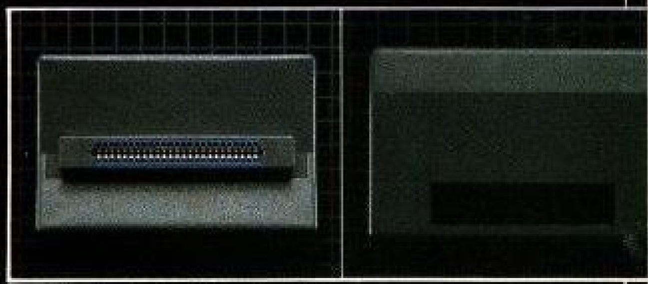




D/I/N/G BEHIND

range of powerful peripherals to
4 and 6128 Amstrad Computers
mpliment their style and colour.

GRAPHICS LIGHT PEN



The sophisticated graphics package includes a colour palette, nudge control for one pixel accuracy, brush choice, text handling and user defined characters.

It can magnify, shrink, colour fill and create circles, rectangles, lines and curves.

Complex pctures can be easily edited at pixel level using a scratch pad which is magnified to the full screen.

There is picture storage and retrieval, and a pen callibration utility and there is also an Amstrad/Epson compatible printer dump utility supplied on cassette.

There is a cassette version for the 464 and a ROM version for the 464 and 6128.

Cassette **£19.95** including VAT (464 only)
ROM **£29.95** including VAT (464 and 6128)

SPEECH SYNTHESISER



This simple to use speech synthesiser includes a powerful stereo amplifier and two high quality speakers which greatly improves the sound quality of the internal mono speaker.

It uses the popular SPO/256 speech chip and has an almost infinite vocabulary.

It is supplied with a text to speech converter software for ease of speech output creation. Everything you wish to be spoken is entered in normal english without special control codes or characters making it extremely easy to use.

The voicing of the words is completely user transparent and the computer can carry on its normal running of a program whilst the chip is talking. The speech output from the SPO/256 is mono and directed to both speakers.

There is a cassette version for the 464 and a ROM version for both the 464 and 6128.

Cassette **£29.95** including VAT (464 only)
ROM **£39.95** including VAT (464 and 6128)

HOW TO ORDER

DK'Tronics products are available in all good computer stores but may be obtained by completing the order form below and returning it to DK'Tronics or by telephoning and quoting your Barclaycard or Access number.

Orders are normally despatched within 24 hours and if you have any further queries concerning our products do not hesitate to give us a ring or send us a large stamped addressed envelope for our latest free 84 page technical manual covering our Amstrad product range.

Please send me ____________________

Name ____________________ Signed ____________________

Address ____________________

I enclose Cheque/PO/Cash for:- Total ____________________
or debit my Barclaycard/Access number ____________________

CP/M+ is a registered trademark of Digital Research Inc.

dk'tronics
POWER BEHIND YOUR AMSTRAD

DK'Tronics Limited
Gorleston, Great Yarmouth, Norfolk NR31 6BE.
Phone 0493 602926 (24 hours), Telex 975408.



PROGRAMMING FOR FUN

By Kay Ewbank and S.M. Gee

Commando Jump is a game written in Basic which is intended to serve a dual purpose – amusement from playing the game itself and improvement of your programming skills from understanding the techniques it uses. Typing in games for yourself is a good way to absorb Basic.

If you are a beginnér you will soon become familiar with its syntax and structure. If you already have some experience you will pick up tips you can incorporate into your own programs.

This game, a test of both reaction time and dexterity, is quite compulsive to play. It can be modified to make it suitable for young children who find it a good introduction to using a computer keyboard.

A bright red wall of varying height appears with a little man figure beside it. A countdown "Ready... Steady... GO" is flashed on the left of the screen and on the word "GO" the man has to jump as high as possible and then scramble up the remainder of the wall. Your success depends entirely on your quick wits and nimble fingers. Details of how to play the game are given later.

Progam details

This is a fairly straightforward application of low resolution dynamic graphics. It runs in Mode 1, a four-colour mode, and takes advantage of the Amstrad's flashing colours. The words "Ready", "Steady" and "GO" are made to flash on and off by making them alternate between magenta and cyan – they disappear as cyan is used as the background colour. The choice of colours takes account of the fact that some Amstrads will be connected to green screens.

The wall is drawn using a brick character defined in line 1120 (as SYMBOL 240) with the top row of dots left in the background colour to give the effect of mortar. The man character is defined in line 1130 as SYMBOL 241 so the man is being drawn wherever you see a reference to CHR$(241).

A realtime program

An important feature of Commando Jump is the way in which it tests your reaction time by using the Amstrad's internal timer to see how quickly you press a key after the word "GO" appears on the screen. The faster you press the key, the higher your initial jump is.

The timer counts in units of 1/300ths of a second and in this game T is scaled to count in seconds. The variable STIME is used to hold the value of the internal timer just before the word "GO" appears on the screen (line 4130). This is used to calculate the elapsed time since the start of the jump.

A very difficult problem in writing animation games of any sort is in synchronising sound and vision. Two methods have been used here. The first is a simple delay loop (as in line 5070)

which makes the upward jump of the man occur roughly in step with the rising tones produced in line 5060. The second method is more sophisticated and is used for the fall down the far side of the wall once a successful jump has been made.

This method involves making sure that the sound queue is empty before the man's next position is plotted. The check is made at line 6140 using the keyword SQ to check on channel 1 which is used to produce the notes.

Play would lose a lot of its challenge but for the fact that the repeat key feature of the keyboard is disabled, so that the player has to hit a key repeatedly in order to make the man climb higher up the wall. Switching off the repeat key is achieved in line 1530 with the command: SPEED KEY 1,200 and restoring it at the end of the game is done in line 7810 by the command: SPEED KEY 30,2.

While testing the program, it is suggested that you type in KEY 0, "SPEED KEY 30,2",+CHR$(13). This resets SPEED KEY to its default values when key 0 on the numeric keypad is pressed. The reason for this is that if you have to break out of the program during its development while the keyboard is set for instant response you will find it is very difficult to type.

Subroutine structure

20 Main program
1000 Sets the colours and initialises graphics characters.
1500 Initialises program variables.
2000 Prints the wall.
3000 Jump logic.
4000 Countdown.
5000 Jump up the wall.
6000 Prints the man over the wall.
7000 Ends game.

Because of its complicated logic, subroutine 3000 is worth looking at in more detail.

3000-3080 Prints initial messages and calls the countdown routine.
3090 Initial jump logic.
3100-3240 Scramble over remainder of wall.
3250-3315 Fall back down wall.
3320-3999 Updates the jump counter and tests for loop end.

Scope for alteration

You might like to make this game easier so that it could be played by small children – or more difficult for computer whizz kids with exceptionally well tuned reaction times. The most straightforward way to change it is to alter the number of keypresses needed to scale one brick higher, set in line 3190. The value is currently 0.25, which means that it takes four keypresses for the man to climb each brick.

You could also change the effect of the initial keypress by altering the amount that T is multiplied by in line 5010. Increasing the value of the constant T is multiplied by (currently set to 28) means that more notice is taken of the speed of the initial reaction.

How to play

Now that you've understood the program the only information you still need is the rules for playing the game. On the word "GO", and no sooner press any key to make the man jump. The height of the initial jump depends entirely on the delay between the signal appearing and your key press. The quicker you react, the higher the man will jump.

The time left to scale the wall is displayed on the screen and while the rest of your five seconds tick away you must keep on pressing any key to get the man over the wall. Only complete keypresses (that is press and release) count, so just keeping your finger on a key will not help.

If the man is not over within the time limit he will slither back down the wall and you can have another go. In all you have a total of 10 tries and at the end of the game your score is displayed. Even if you are very slow off the mark, do press a key – until you do you cannot move on to the next try.

If, on the other hand, you hit a key just before the "GO" signal the computer will accuse you of cheating and you will lose that turn. Have fun.

```
****JUMP*****
10 REM COMMANDO JUMP
20 MODE 1
30 GOSUB 1000:REM GRAPHICS INIT
35 GOSUB 1500:REM INIT
40 GOSUB 2000:REM PRINT WALL
50 GOSUB 3000:REM JUMP
60 GOSUB 7000:REM ENDGAME
70 IF A$="Y" THEN RUN
99 END
1000 REM GRAPHICS INIT
1010 INK 0,23
1020 INK 1,6
1030 INK 2,0
1040 INK 3,8,23
1050 PAPER 0
1060 PEN 1
1100 REM GRAPHICS CHARACTERS
1110 SYMBOL AFTER 240
1120 SYMBOL 240,0,&FF,&FF,&FF,&FF,&FF,&F
     F,&FF
1130 SYMBOL 241,&18,&18,&FF,&3C,&3C,&24,
     &24,&24
1499 RETURN
1500 REM INIT
1510 JUMP=1
1520 H=INT(10+(RND(1)*5))
1530 SPEED KEY 1,200
1999 RETURN
2000 REM PRINT WALL
2010 PEN 1
2020 CLS
2040 FOR I=18 TO 19-H STEP -1
2050  LOCATE 10,I
2060  PRINT CHR$(240);
2070 NEXT I
2080 LOCATE 10,18-H
2090 PAPER 1
2100 PRINT " ";
2110 PAPER 0
2999 RETURN
3000 REM JUMP
3020  LOCATE 10,20
3030  PRINT "Jump ";JUMP
3040  LOCATE 13,18
3050  PRINT CHR$(241);
3060  GOSUB 4000:REM COUNTDOWN
3070  PEN 2
3080  IF T>=5 THEN GOTO 3320:REM NEXT JU
     MP
3090   GOSUB 5000:REM DO JUMP
3100   J=I
3110   L=INT (I)
3120   T=(TIME-STIME)/300
3130   IF T>=5 THEN GOTO 3250:REM OUT OF
     TIME
3140    LOCATE 5,23
3150    PRINT "Time left ";INT ((5-T)*10
   )/10;" "
3160   IF INKEY$="" THEN GOTO 3120:REM C
   HECK TIME
3170    LOCATE 13,INT (L)
3180    PRINT " ";
3190    J=J-0.25
3200    L=INT (J)
3210    LOCATE 13,L
3220    PRINT CHR$(241);
3230   IF L<=17-H THEN GOSUB 6000:RETURN
   :REM MAN OVER WALL
3240   GOTO 3120:REM CHECK TIME
3250   FOR I=L TO 18
3260    LOCATE 13,I-1
3270    PRINT " ";
3280    LOCATE 13,I
3290    PRINT CHR$(241);
3300    SOUND 1,200+I*6,5
3310   NEXT I
3315  FOR K=1 TO 1000:NEXT K
3320  JUMP=JUMP+1
3330  LOCATE 5,23
3340  PRINT SPC(15);
3350 IF JUMP<=10 THEN GOTO 3020:REM JUMP
      LOOP
3999 RETURN
4000 REM COUNTDOWN
4005 WHILE INKEY$<>"":WEND
4010 PEN 3
4020 LOCATE 1,20
4030 PRINT SPC(5);
4040 LOCATE 1,20
4050 PRINT "Ready";
4060 FOR I=1 TO RND(1)*1000+1000:NEXT I
4070 LOCATE 1,20
4080 PRINT "Steady";
4090 FOR I=1 TO RND(1)*1000+1000:NEXT I
4100 LOCATE 1,20
4110 PRINT SPC(6);
4120 IF INKEY$<>"" THEN GOTO 4500:REM CH
     EAT
4130  STIME=TIME
4140  SOUND 1,100
4150  LOCATE 1,20
4160  PRINT "GO"
4170  IF INKEY$="" THEN GOTO 4170
4180  T=(TIME-STIME)/300
4190 GOTO 4999:REM SKIP CHEAT
4500  LOCATE 2,10
4510  PRINT "CHEAT"
4520  SOUND 1,1000
4530  FOR K=1 TO 2000:NEXT K
4540  LOCATE 2,10
4550  PRINT SPC(5);
4560  T=(TIME-STIME)/300
4999 RETURN
5000 REM DO JUMP
5010 FOR I=18 TO 18-H+INT (T*28) STEP -1
5020  LOCATE 13,I
5030  PRINT " ";
5040  LOCATE 13,I-1
5050  PRINT CHR$(241);
5060  SOUND 1,119+I*6,10
5070  FOR K=1 TO 20:NEXT K
5080 NEXT I
5090 SOUND 129,0
5099 RETURN
6000 REM MAN OVER WALL
6010 FOR I=13 TO 5 STEP -1
6020  LOCATE I+1,L
6030  PRINT " ";
6040  LOCATE I,L
6050  PRINT CHR$(241);
6060  FOR K=1 TO 100:NEXT K
6070 NEXT I
6080 FOR I=L TO 18
6090  LOCATE 5,I-1
6100  PRINT " ";
6110  LOCATE 5,I
6120  PRINT CHR$(241);
6130  SOUND 1,200+I*6
6140  IF (SQ(1) AND 7)<>4 THEN GOTO 6140
6150 NEXT I
6999 RETURN
7000 REM ENDGAME
7010 IF JUMP<=10 THEN GOTO 7500:REM SUCC
     ESSFUL JUMP
7020  LOCATE 1,24
7030  PRINT "YOU FAILED"
7040 GOTO 7800:REM SKIP
7500  LOCATE 1,24
7510  PRINT "YOU TOOK ";JUMP;" JUMP";
7515  IF JUMP>1 THEN PRINT "S";
7520  PRINT " TO CLEAR THE WALL"
7800 WHILE INKEY$<>"":WEND
7810 SPEED KEY 30,2
7820 INPUT "ANOTHER GAME ";A$
7830 A$=LEFT$(A$,1)
7840 A$=UPPER$(A$)
7850 PEN 1
7999 RETURN
```

MODEM LIVING...

If you've just bought a modem for your computer – congratulations, you are at the forefront of the general public's movement from voice-based and hard copy communications to digital telecommunications. Steve Gold looks at what you can do with your new toy.

Remote database systems (RDBSs) are non-commerical public or semi-public computer systems, operating over standard telephone lines, which provide remote information access and interchange. Originally known as BBSs, they include:

1. Message-oriented systems, including remote bulletin board systems (RBBSs or BBSs – also known as public access message systems or PAMS).
2. Public domain software exchanges (PDSEs – often known as remote CP/M systems or RCPMs).
3. Special interest groups (SIGs), including those on commercial systems like Telecom Gold, Geonet, The Source and CompuServe, as well as those operated as stand-alone BBSs.
4. Mixed systems providing a variety of message, text, and software exchange (known by any of the above names but best described by the generic term BBS).

If you take the time to read and understand the information in this article, you should be able to sign on to a remote database system, take steps toward becoming a validated user of that system, read and write messages, perhaps do some file transfers, and anything else the system may allow.

You will be safe in the knowledge that you are doing all of this without making any serious mistakes, such as accidentally accessing the Police National Computer or launching a flock of ICBMs towards Russia. Incidentally, whatever you may see at the cinema, there is no way you or anyone else could break into the UK's missile launching system by mistake. It isn't even connected to standard telephone lines.

As with everything else that is good in the world, there are responsibilities that go along with your telecommunications activities. Always remember that you are using someone else's computer system – you are a guest. Each system has its own set of rules, so your first priority is to find out what those rules are and then obey them when you are on that system. Most BBSs are run on personal computers by private individuals who dedicate a great deal of time, expense and equipment for our common benefit. You are the guest of those sysops – always act with courtesy and respect.

"Who you gonna call?"

One of the first problems you'll encounter is: "Who can I call?" Getting that first phone number can be fairly easily accomplished by contacting a few computer retailers, or just asking your friends or business associates (all of whom have computers and modems, right). There is a short list at the end of this article.

Then, once you've got on to a system, you're likely to find a few messages about other BBSs and many systems even have included a comprehensive list of BBSs in your area that is available for you on-line. A complete list of UK bulletin boards – now totalling around 150 – is available on MicroLink.

Pretty soon you'll have a fairly large list of your own, and it won't take long to determine which systems you like best or which offer you the most desirable features. Smaller systems go up and down like flags, and some of the numbers you get may no longer be valid. If you encounter this situation, throw the number away! It may have been re-assigned by BT to another subscriber who knows nothing about computers, and it's very irritating to pick up the phone and get a modem tone in your ear.

If someone answers "voice", it's courteous to pick up your receiver and ask them if there is a BBS operating at that number. If not, apologise for the wrong number and scratch it from your list. Then contact the person you got the number from – sysop of a BBS, computer retailer, friend – and inform him or her that the number is not a BBS and should not be given out to anyone else.

Connection: You're on-line!

All right, so you've made contact with your first bulletin board. What now? Depending on the type of program the system uses, and the machine it's being run on, signing in (logging on) is accomplished in various ways. For example, if you've accessed an IBM-PC running the popular RBBS-PC program, you would press Enter, two or three times until it recognises your presence (RBBS-PC calls the Enter key C/R, for Carriage Return). This allows the two computers to match up with each other so that communication can begin.

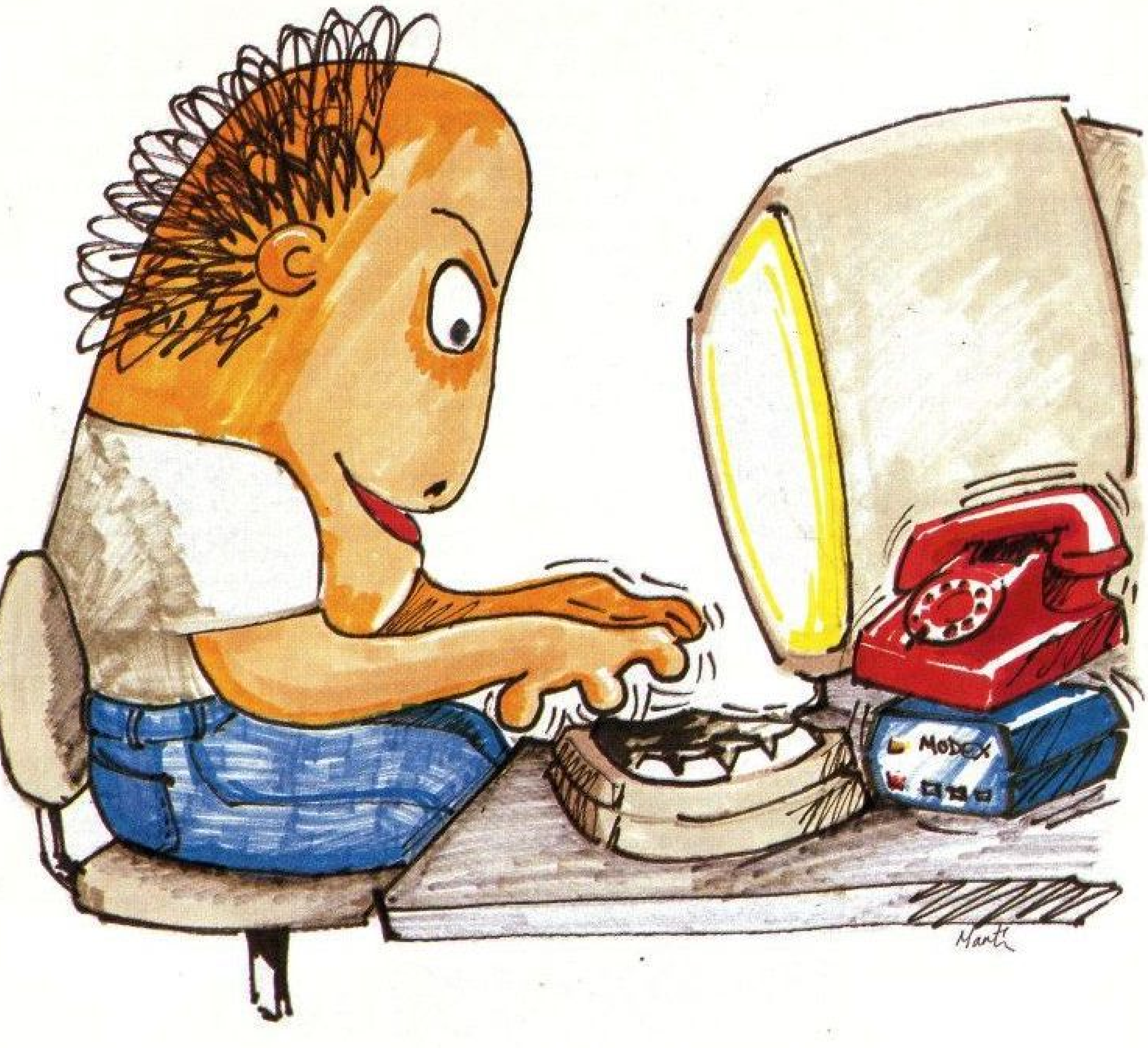
The process of entering one or more carriage returns upon getting a CONNECT is very common, although some systems do not require it. From that point on you will be prompted, or asked what you want to do next.

Signing on (logging on, logging in)

Now you will be asked certain questions that you must answer in order to be validated, or allowed to use the system. It's good practice to enter only accurate, honest information. Usually it goes something like this: FIRST NAME then LAST NAME (or sometimes FULL NAME), CITY you're calling from, a valid voice phone number where you can be reached, and your PASSWORD.

1. First and last names

This information is probably the most important. This will be how you're known to the sysop and other users, and will be the name to which private messages (E-mail) are addressed. Some BBSs allow the use of false names, "handles" or aliases.



Check out the rules of the system to see if this is permitted. In just about every case you will be required to disclose your true identity to the system operator. It's recommended that you sign on with your own name first. If you later learn that aliases are allowed, and you wish to use one, ask the sysop to alter your record accordingly. Sysops of many of the more sophisticated systems around the country will not validate a person who logs on with an alias, even if they give the correct name later. Right or wrong, they feel that aliases are a sign of immaturity and thus that the prospective user might just cause problems rather than make a positive contribution.

2. City

This information is not usually that critical unless you are calling long distance, but it must be entered. A few sysops mail passwords to newly-validated users, so a complete postal address may be required.

3. Telephone number

Some systems require this information once only but others use it as part of your password. Some system operators will not allow you full, or even any, access to the BBS until they have called you "voice" to verify your vital information.

4. Your password.

Sometimes the sysop will assign the password that you'll need for further access and either leave it on the system for you to find the next time you call in, or phone you "voice" and give it to you. Usually, though, you will be asked to type in the password you wish to use.

Sometimes the system will ask you to type it again, and this second time you will see symbols instead of letters, like "......" or "********" or "12345678". This is a security feature, so that in the future you can type your password with people looking over your shoulder. Make your password clever enough so that no one can figure it out, but not so clever that you forget it. It's very difficult to prove to a system operator that you really have forgotten your password, and you're not actually some nefarious person trying to gain unauthorised access. Write it down and put it in a safe place where nobody else is likely to see it.

In case you feel a little nervous about giving all this private information to some stranger, let us try to calm your fears. Your personal data is held in confidence. Of course there are some bad sysops, just like there are bad users. And very occasionally accidents do occur, sometimes with unfortunate results. But this is very rare, and any sysop who is foolish enough to betray the confidence placed in him or her will very soon have a system with no users on it.

It's also a wise practice to use a different password on each and every system that you access. That way, if someone discovers your password it will only affect one system – a situation that is not all that difficult to deal with. In addition, some users like to change their passwords at regular intervals. The already slim chance for abuse is reduced even further.

A new user's first log-on information

Most systems include a new-user message. This is normally seen only the first time you get on to a system. It may contain a greeting, a summary of commands, instructions, system news, or the rules that you will be expected to observe on that particular system. Read it thoroughly.

As a general practice you should have

your "capture buffer" open or your printer turned on each time you log in to a new system. This allows you to study the rules and procedures of that system before you log in again.

The main command prompt and menus

Almost every system in use has a main command prompt, and a main menu from which you can select what you want to do. The latter will list the commands that you may use, and these may provide access to one or more files that are designed to assist you. Known as Help files, they are usually accessed by entering H, or ?, or .HELP, depending on the particular BBS. You will find it useful to download and print these files.

There is nothing more irritating to a system operator than a brand-new caller, usually a novice, who immediately switches the terminal to Expert mode and then starts stumbling around the system, totally lost. Expert mode, found on most systems, is for the user who has mastered that system and no longer needs the majority of the menus or other assistance.

After becoming completely confused, the user will then either "page" the sysop, which means try to get the operator to type directly to him or her on-line, or leave personal notes to the sysop like, "I can't get this thing to work," or "What's wrong with the message area?" The information you want is in the Help files – if it's not, it's not much of a system. If all else fails and you can't get an answer to a legitimate question, by all means try to contact the sysop, but think of it as a last resort measure.

The Page or Operator command is a feature found on most BBSs which signals the sysop that a user wishes to chat, or type directly back and forth. It does so by causing the host computer to beep, thus alerting the operator. One quick way to get on a sysop's bad side is to engage this function time after time after time. Usually, once is enough.

If the operator does not respond he is either not around or does not wish to be disturbed. In that case simply leave a message. If your question requires an answer, you'll usually get one.

Some things that will not get a response are questions about system commands or procedures, for everything you need to know should already be included in Help files or bulletins. Bear in mind that each message, comment or reply takes up precious disc or memory space, and smaller systems only have a limited amount of room.

Make your comments count. If you sincerely are confused about something and need help, most sysops – and users, for that matter – will bend over backwards to help you out. After all, we were all beginners once.

0742 667983	The PIP	Sheffield
01-863 0198	London Underground	London
01-882 7573	Alices Resturant	London
0784 38110	The Sanctuary	SE England
061-427 1596	MBBS	Manchester
051-428 8924	Mailbox 80	Liverpool
031-657 3272	Flying Scotsman	Edinburgh (Evenings and weekends only)

Some numbers to try

ACU

HOW TO TURN YOUR PCW8256/8512 INTO A BUSINESS WORKSTATION

SANDPIPER ACCOUNTS

A SIMPLIFIED INTEGRATED ACCOUNTING SYSTEM

Each transaction need only to be entered once,
all relevant ledger postings happen automatically at the time of posting.

Specially written for PCW8256
Utilizes the RAM Disk to eliminate the need for changing disks during the day.

Personalized Invoices/ statements/remittances
Produces Professional Documents with Full Business Details on inexpensive blank paper thus improving your company's image. Designed to fit standard window envelopes.

Large file capacity
Sufficient Sales, Purchase, and Nominal Ledger Records may be kept for most businesses on 1 data disk.

Easy to use - Designed for Inexperienced Users
Full instructions for use appear on the screen. The comprehensive manual need only be used for reference.

Full customer telephone support - available if required.

Sales Ledger
Invoice Posting
Cash Receipts
Debtors List
Statements
View Account

Purchase Ledger
Bill Posting
Cash Payments
Creditors List
Remittances
View Account

Name & Address Labels

Nominal Ledger
Lists of Accounts
Reports
Periodic Transactions
N.L. History

Cashbook
Bank Statement Entry
Full Reconcilliation
Periodic Transaction
View
(gives TRUE cash status)

VAT Returns Invoicing/ Credit Notes

Single Drive System:
200 Accounts
(Sale, Purchase)
1000 Transactions
200 Nominal Accounts

Dual Drive System:
1000 Accounts
(Sales, Purchase)
4000 Transactions
200 Nominal Accounts

Management Reports
1) Stock Report
Value of Stock
Cost of Sales
2) Assets including Depreciation
3) Prepayments & Postpayments
4) Expenses
5) Profit & Loss
6) Balance Sheets

SANDPIPER PAYROLL

A SIMPLIFIED INTEGRATED PAYROLL SYSTEM

designed to be fully compliant with all current tax/National Insurance guidelines.

High capacity
up to 100 employees per data disk.

Department management
up to 100 departments may be held on each payroll data disk.

Tax compatible
handles all H, L, P, V, BR, D, NT, F tax codes both normal and week 1/month 1.

National Insurance compatible
contains N.I. tables A-G.

S.S.P. compatible
handles all S.S.P. rates and caters for full attendance records and automatic calculation of S.S.P. qualifying days and S.S.P. to be paid.

Additions and deductions
the system caters for 13 additions - pre and post tax - each of which may be pre-set (e.g. union) or entered for each period (e.g. expenses). The post tax tax deductions may also be factored on a sliding scale from the pay this period.

Overtime rates
caters for the 7 normal overtime rates.

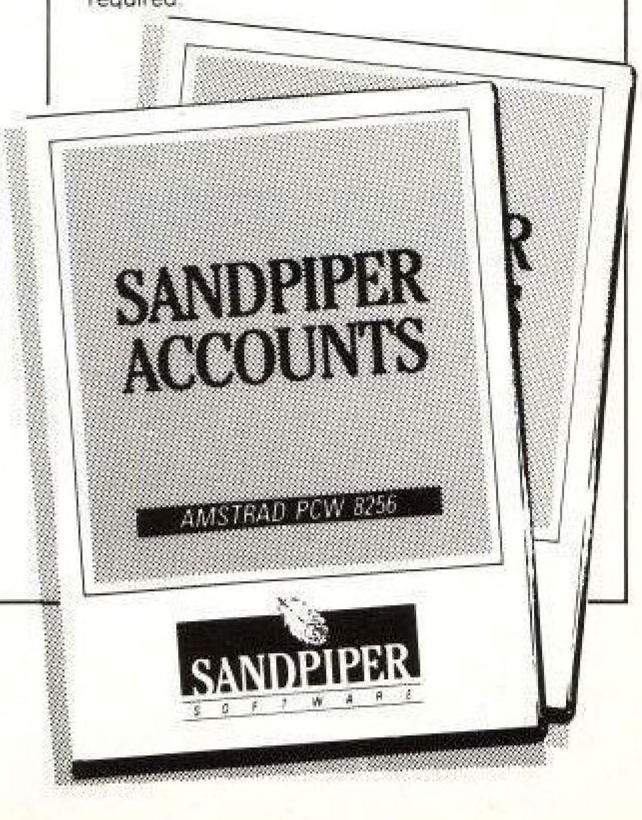
Pension schemes
the system incorporates most pension schemes on fixed value or sliding scale.

DEALER ENQUIRIES WELCOMED

Holiday pay
caters for statutory, unpaid and holidays at two rates with full records for the year.

Documents
the system caters for P35 and P60 prints as well as full employee details prints.

Annual updates for TAX and N.I. changes are available together with full software support if required.



ACU9/86

Please send Sandpiper Accounts
Single Drive System **£129.95** inc VAT ☐
Dual Drive System **£149.95** inc VAT ☐

Please send Sandpiper Payroll
Single Drive System **£ 69.95** inc VAT ☐
Dual Drive System **£ 79.95** inc VAT ☐

Sandpiper Combination Packs:
Sandpiper Single Drive System Accounts & Sandpiper Payroll **£179.95** inc VAT ☐
Sandpiper Dual Drive System Accounts & Sandpiper Payroll **£199.95** inc VAT ☐

Please send for details: Sandpiper Accounts ☐ Sandpiper Payroll ☐
I enclose cheque made payable to: Sandpiper Software Limited
Please debit my ACCESS/VISA

Name ____________________
Address ____________________
____
____
Tel. No. ____________________

SANDPIPER
S O F T W A R E

**SANDPIPER SOFTWARE LTD.
24 Abbot Street, Wrexham,
Clwyd LL11 1TA.
Tel: 0978 358832**

GALLUP SOFTWARE CHART

	TITLE	PUBLISHER	Last month		Months in chart	Market strength
1	**KANE**	Mastertronic	new	▲	1	100
2	**GREEN BERET**	Imagine	new	▲	1	66
3	**WINTER GAMES**	Epyx/US Gold	11	▲	2	52
4	**BATMAN**	Ocean	1	▼	2	51
5	**ELITE**	Firebird	re-entry	▲	2	50
6	**RADZONE**	Mastertronic	new	▲	1	48
7	**THEY SOLD (2)**	Hit Squad	5	▼	3	40
8	**TOMAHAWK**	Digital Integration	8	▶	2	40
9	**FORMULA ONE SIMULATOR**	Mastertronic	12		9	38
10	**BIGGLES**	Mirrorsoft	new	▲	1	37
11	**KUNG FU MASTER**	US Gold	new	▲	1	36
12	**HEAVY ON THE MAGICK**	Gargoyle Games	new	▲	1	36
13	**COMMANDO**	Elite	3	▼	3	35
14	**WORLD CUP CARNIVAL**	US Gold	new	▲	1	35
15	**LAST V8**	Mastertronic	6	▼	4	34
16	**HARVEY HEADBANGER**	Firebird	new	▲	1	33
17	**SPINDIZZY**	Electric Dreams	4	▼	4	31
18	**TURBO ESPRIT**	Durrel	9	▼	3	30
19	**INTO OBLIVION**	Mastertronic	7	▼	3	30
20	**BOMB JACK**	Elite	14	▼	2	29

READERS' Chart

Your chance to vote for your favourite games.

Month three of our readers chart and things are really humming. This is your chance to vote for the games you think are best, not just the ones that make the Gallup chart, so reach for those pens. Don't forget you can only vote for games that are available and there is a prize for the first coupon pulled out of the hat.

August's winner was Mr S.J. Lee of Fenstanton, Huntingdon, Cambs.

If you don't want to ruin your *ACU* by chopping bits out, send us a postcard.

September Chart

1. **Sorcery** – *Virgin*
2. **Spindizzy** – *Electric Dreams*
3. **Batman** – *Ocean*
   Who Dares Wins II – *Alligata*

Amstrad Turkey Award – Bridge It – *Amsoft*

Send your votes to:
Readers Chart, c/o ACU, 169 Kings Road, Brentwood, Essex CM14 4EF.

OCTOBER VOTING SLIP

You only get three votes – please use them wisely. The first form pulled from the hat wins a prize.

Game 1 ______________________

Game 2 ______________________

Game 3 ______________________

Amstrad Turkey ______________________

Name ______________________

Address ______________________

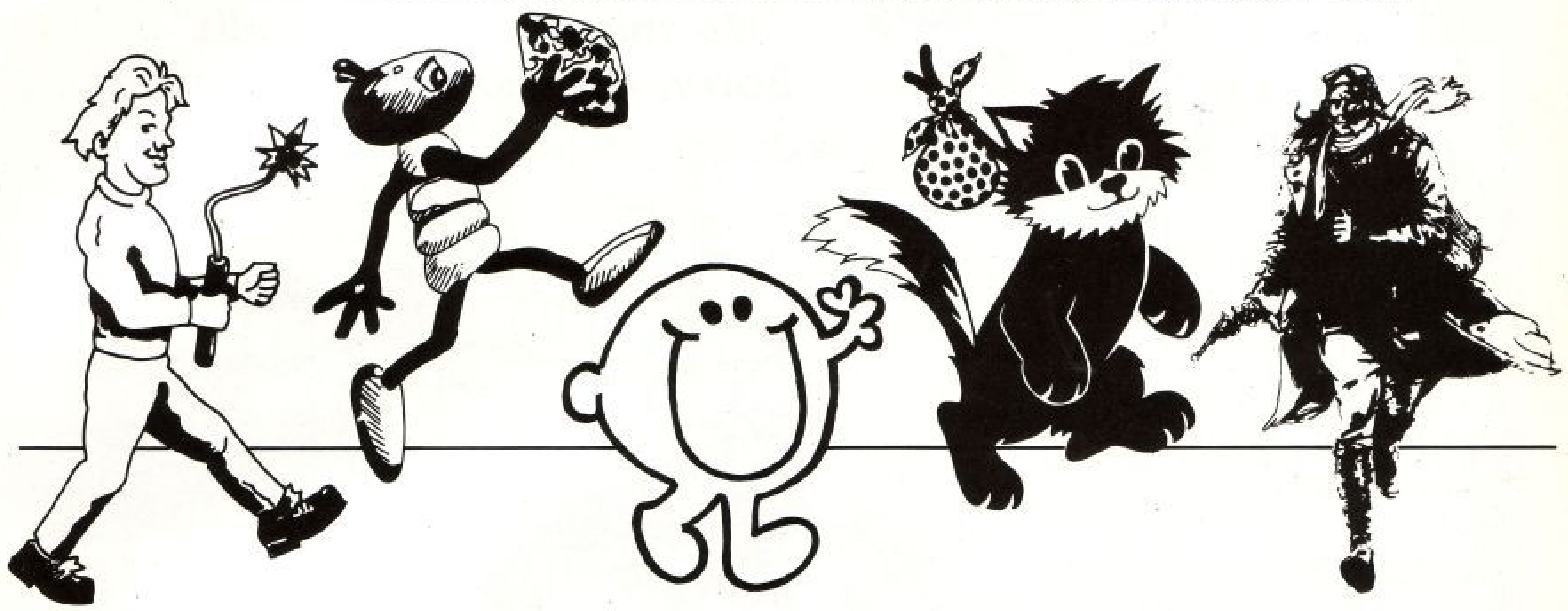
____

____

____

Age (optional) ______________________

MIRRORSOFT BY MAIL ORDER



You've always known that Mirrorsoft produces high-quality Amstrad CPC games and children's software – but did you also know that the entire range is available by mail order direct from our warehouse, with no extra charges for postage and packing?*

We accept cheques, postal orders, Access, VISA, and American Express cards. Please allow 28 days for delivery.

GAMES

	Tape	Disk
ASHKERON! Challenging text/graphics adventure	£6.95	N/A
BIGGLES Sopwith Camels and police helicopters!	£9.95	£14.95
BOULDER DASH The all-time arcade strategy classic	£9.95	£14.95
DYNAMITE DAN A platform game with real style!	£8.95	£13.95
SAI COMBAT Martial arts with a new twist	£8.95	£13.95
SPITFIRE 40 Relive the Battle of Britain	£9.95	£14.95
STRIKE FORCE HARRIER The ultimate flight/battle simulation	£9.95	£14.95

EARLY LEARNING/CHILDREN'S ENTERTAINMENT

	Tape	Disk
FIRST STEPS WITH THE MR MEN Ages 3-6 Fun for the youngest pre-reader	£8.95	£13.95
HERE & THERE WITH THE MR MEN Ages 4-7 Early Logo skills for little ones	£7.95	£12.95
CAESAR'S TRAVELS Ages 3-9 Animated storybook and software	£8.95	N/A

Also available:

BIGGLES:	Posters	Free!
	T-shirts	£3.95 (S/M/L)
	Scarves	£4.95
SAI COMBAT	Posters	Free!
SPITFIRE 40	Posters	Free!
STRIKE FORCE HARRIER	Posters	Free!
COMPLETE COLOUR CATALOGUE		Free!

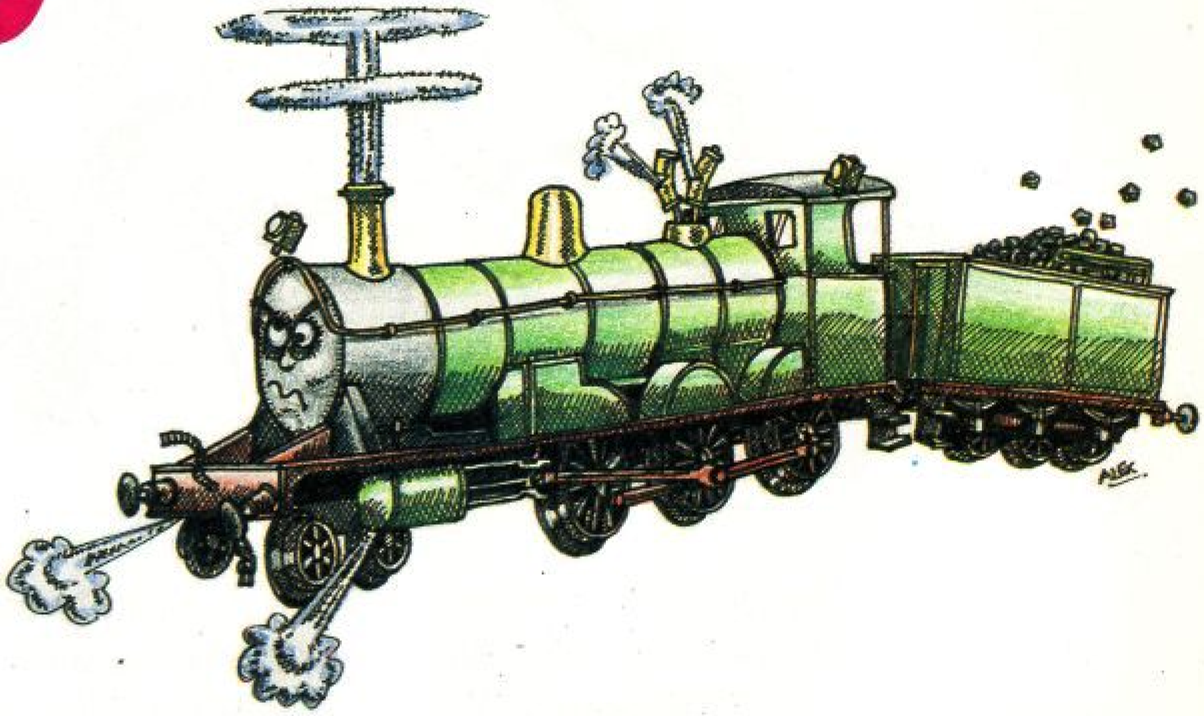
*Free postage and packing applies to UK and BFPO orders only

MIRRORSOFT

MIRRORSOFT, Dept AM, FREEPOST BS4382, Paulton, Bristol BS18 5BR

GOING LOCO

This month Alexander Martin looks at . . . look can someone else answer the 'phone . . . "No this isn't Ford credit". Sorry, Alex looks at interrupts.



Think of a racing car driving round a track. Up jumps a member of the pit crew and waves a board at the car. The driver sees the board and pulls into the pits. The crew changes the tyres on the car which then pulls out of the pits and continues round the track. The driver has been interrupted, while driving round the track, for the tyres to be changed. This is a separate but necessary part of the race. But what does all this have to do with programming?

Well, Locomotive Basic has facilities that allow a separate part of a program to be run at regular intervals or when a certain amount of time has elapsed. This month I'm going to introduce you to these interrupts. There are several interrupt facilities but we'll just look at the two general purpose ones.

The first type is called EVERY and it allows a subroutine to be called every so often. This is for doing things that need to be done at regular intervals. A real life example would be if you were expecting somebody to pick you up from your house, every two minutes you stop what you're doing and look out of the window to see if they have arrived.

The other type of interrupt is called AFTER and it allows a subroutine to be called only once after a period of time has elapsed. To use our example, if the person who was picking you up from your house didn't turn up you might say "I'll give them 10 minutes but after that I'm taking the bus."

Neither of the two examples are very good from a programming point of view but they show the difference between the two types of interrupts.

We interrupt this explanation for a program

Let's look at some examples of interrupts in use. Here is the EVERY command.

```
0 CLS
20 EVERY 15 GOSUB 120
30 a=1:x=3
40 DI
50 LOCATE x,1
60 PRINT" O "
70 EI
80 x=x+a:IF x>37 OR x<3 THEN a=-a
90 GOTO 40
100 :
110 :
120 LOCATE 1,3
130 PRINT"x is";x
140 RETURN
```

This program loops around continuously printing an O on the top line of the screen and moving it backwards and forwards. The EVERY command on line 20 sends the program off to the subroutine, at line 120, every 15 50ths of a second. The computer counts down from 15 and then interrupts. The current command in the main program is finished and then the program goes off to the subroutine as if a GOSUB were the next command. The subroutine prints out the position of the O when the routine is called. Of course this does nothing useful – the same can easily be achieved without using the EVERY command. However the routine at 120 could be totally unrelated to the other part of the program, polling the keyboard, moving some graphics, even printing the time on the screen.

Interrupts can be confusing

There are important things to note about the program. The routine at line 120 must be a complete subroutine with a RETURN at the end. This tells the program to return to the instruction after the place where the interrupt occurred.

You should note that there are two strange instructions in the program on lines 40 and 70. The instruction DI tells the program to disable the interrupts so that they do not occur. I included these in the program so that the O was never printed in the wrong position. If not included, an interrupt might occur between setting the cursor position in line 50 and printing the O in line 60.

The interrupt routine also changes the cursor position and then leaves it dangling. The O would then be printed and printed in the wrong position. That type of side effect can cause a great deal of confusion. Altering a variable in the interrupt routine that's also being used in the main program can cause similar confusion. Very small interrupts can also cause chaos. An EVERY with a parameter of 5 or less means that the program is doing very little else but processing interrupts. Try it with the above program.

What's for AFTERs?

Here's the same program using AFTER:

```
10 CLS
20 AFTER 100 GOSUB 100
30 a=1:x=3
40 LOCATE x,1
50 PRINT" O "
60 x=x+a:IF x>37 OR x<3 THEN a=-a
70 GOTO 40
80 :
90 :
100 LOCATE 1,3
110 PRINT"x is";x
120 RETURN
```

As you'll see, the "x is" message comes up only once after a few seconds. While the program is running and before the message comes up, press Esc once. This suspends the program until you either press Esc again to stop it altogether or

press another key to restart the program.

As soon as you restart it you'll notice the message giving the row where the O was stopped. This is because the interrupt timers keep going even while the program is suspended and interrupts that should have occurred are stored up to be executed as soon as the program is able. Now you understand interrupts in simple terms let's introduce some complications.

There are four timers available and you can put one interrupt on each one. This means that you can have three EVERYs and an AFTER active at one time, or any combination you want. The four timers have priorities with timer 0 being the lowest and timer 3 being the highest.

When an interrupt occurs, while Basic is busy processing a statement, the interrupt is stacked up to be processed later. If there is more than one interrupt waiting to be processed, when the statement is finished the interrupt with the highest priority is the next to be processed.

The next example shows three EVERYs being used with priorities. It also shows how a progam can be set to go round a loop that does nothing while the interrupt routines are doing the work.

```
10 CLS
20 EVERY 10,0 GOSUB 100
30 EVERY 20,1 GOSUB 200
40 EVERY 30,2 GOSUB 300
50 :
60 GOTO 60
70 :
100 DI:LOCATE 1,1:PRINT "TIMER 0";t0:EI
110 t0=t0+1
120 RETURN
130 :
140 :
200 DI:LOCATE 1,5:PRINT "TIMER 1";t1:EI
210 t1=t1+1
220 RETURN
230 :
240 :
300 DI:LOCATE 1,10:PRINT "TIMER 2";t2:EI
310 t2=t2+1
320 RETURN
```

The race against timers

Running the program you'll see the timers processing the interrupts. This doesn't illustrate the priorities very well. To do that you must alter the program so that the timers are competing with each other, in a race, by changing the values in the EVERY commands to the same value of 4. You should notice that timer 0 falls behind the others as it gets pushed out of the queue for the processor.

I have included DI and EI in the actual interrupt routines. If you leave them out you will notice that a message is occasionally printed in the wrong place, indicating that the routine is being interrupted while in the middle of processing an interrupt. Only those with a higher priority than the interrupt being processed will do this. Lower priority interrupts are excluded. It's good fun to do the trick with the Escape key to this program.

All that remains

Once an interrupt is started it churns away for the duration of the program. But there may be times when you will want to stop the interrupt. There is a special function to enable this called REMAIN. To use this, it is necessary to assign the result of the function to a dummy variable. The result is the count remaining for a specified timer.

So to stop the interrupt put a line into the program something like:

dummy=REMAIN(0)

The number in brackets is the timer that should be disabled. Zero is the default timer if you didn't specify one in the EVERY or AFTER command. That's interrupts. Bye.

ACU

N-E-X-O-R

Where saving the universe comes second...



Alexander Martin has been granted a sneak preview of Design Design's latest release

With a mighty hiss the airlock doors slid open, spilling light and vapour into the darkened corridor. I crouched low behind the storage crates and waited to see what would emerge from the transport lift. A moment later one of the large Andromedan robots trundled out on to the walkway. The robot turned, passing close by, but its scanners failed to detect my presence and it moved on down the corridor.

"Ugly scrapheap", I muttered under my breath. As the airlock doors began to shut, I slipped through to the control room beyond. I was in luck, there were no robots lingering in this part of the ship. Obviously they were in the other sections searching for the remaining modules.

I had only a few minutes left before the auto destruct circuits cut in and took me, the Andromedans, the modules and the whole kit and caboodle on a one way ticket to the stars.

Time was running out. Although I am head of security on Nexor, I was never concerned with maintaining the systems. Somewhere in the goddam' place was the spare control panel for the Matter Transporter Beam, my passport off the planet, and I couldn't find it. It was a real bad moment discovering the MTB's panel had turned into a jigsaw and a worse one finding out that all the remaining technicians had been wiped out in the attack.

Time was passing, I'd moved on to another part of the complex but still no sign of the panel. The robots were active in this area and only swift moves had prevented my death. I was beginning to regret arming the self-destruct but I knew the robots were getting close to the blueprint tapes and they had to be prevented from getting their greasy pincers on them at all costs, including my life.

The tapes were the overriding consideration. They contained the plans of the Nemesis device, the ultimate weapon of destruction and the key to the final conflict in the Andromedan War. Only the destructive capabilities of the Nemesis weapon could break the deadlock of the Seige of Orion.

If the plans for the weapon fell into enemy hands they would use it to destroy the Earth forces and wipe human life from the universe. Worse than that, if they get hold of the Nemesis modules they could reconstruct the dismantled weapon and use it immediately.

I'd crossed into the stores section of the base and found directions to the emergency equipment lockers. I could see the locker containing the control panel. The only thing stopping me from getting the panel, was a mean looking sentry robot patrolling the room. It was one of the less intelligent type that only activate when their path is interfered with.

I ducked across the room and reached the locker. I tugged at the door, no luck, it was jammed, or worse, locked. The robot was returning and I just had time to leap out of its way. I waited for the robot to make another pass then had a second attempt. The locker flew open and I grabbed the panel.

With only seconds remaining, I dashed up the corridor to the MTB room. Snatching the debris of the old panel from the control housing, I shoved the new one in and started the countdown. There was just time to retrieve the tapes from the place that I had left them and jump on to the transporter pad before it activated.

As I rematerialised on the Starcruiser Centurian, I was knocked off balance by the shock wave of Nexor exploding. A crew member helped me to my feet. "Here", he said, "I think you dropped your lunch box" and handed me the tapes.

Nexor is the latest game from ace programmers Design Design. Set in the far future, you are the chief of security on the planet Nexor and the last surviving human in the military complex on the planet. You must find the Nexor modules and plans, preventing the Andromedan robots from recreating the Nemesis device.

The game is a 3D isometric type of the kind pioneered by Ultimate. Your character can move in any direction behind and in front of objects picking up and dropping the articles you'll find in the complex.

Only one object can be carried at a time, so careful planning will be necessary to complete the task.

The Andromedan robots move throughout the complex seeking out and transporting away the objects that they find. If you encounter one, only quick thinking and fast reactions will save your skin. Some robots will come directly for you, while others stay on their programmed path. The robots can be duped into helping you by chasing you and dematerialising objects that are in your way.

To complete the game you must recover the tapes, assemble a Nemesis device from the modules and use it, or start the self destruct mechanism to destroy the modules recovered by the Andromedans.

To avoid your own destruction you must recover the spare control panel to the Matter Transfer Beam and this is the priority in the game. Saving the universe comes second.

Don't miss out!

AMSTRAD PROFESSIONAL COMPUTING

Amstrad Professional Computing is going to be required reading for professional Amstrad users. Just like Amstrad Business Computing it will be full of articles, hints and tips for the businessman (and woman) and anyone else who's interested in the more serious uses for Amstrad computers.

There is bound to be a huge demand for this new title, but as with any new magazine it is not always possible to make sure that every newsagent in the land buys enough copies. Just think how dreadful it would be if your WH Smiths, John Menzies or corner shop ran out. You would be starved of the informed comment from our experts. There would be no more forum to read, and you would even miss the exploits of Eddie, Pete and Julie.

Fear not! There is a way to make sure that you don't miss APC – by taking out a subscription. If you fill out the coupon opposite you can make sure of every copy of APC right from issue one.

Just to show how much we appreciate you we are offering a FREE BINDER to every founder subscriber. This is a sturdy wire bound job with a blue PVC cover, which will keep your copies clean, and the Amstrad Professional Computing logo embossed on the spine to distinguish it from the ACU binders you already have.

SUBSCRIPTION ORDER

		(✓)	£ p
£15 UK and Eire	4001		
£23 Europe	4002		
£38 Overseas	4003		
Free binder *(UK only)*	4004		

Please indicate method of payment (✓)

☐ Access/Mastercharge/Eurocard/Barclaycard/Visa

Expiry date /

Card No.

☐ Cheque/PO made payable to Amstrad Professional Computing

Name ____________ Signed ____________

Address ____________

Post to: Amstrad Professional Computing, FREEPOST, 36 St Petersgate, Stockport SK1 1HL.

Order at any time of the day or night

Telephone Orders: 061-429 7931	*Orders by Prestel:* Key *89, then 614568383	*MicroLink/Telecom Gold* 72:MAG001

Don't forget to give your name, address and credit card number

ENQUIRIES ONLY: 061-480 0171 9am-5pm.

ACU9

---

252 Scalford Road
Melton Mowbray
Leicestershire LE13 1LA

Squirrel's Byte

Tel: (0664) 63617

COMPUTERS – CARRIAGE FREE!

CPC 6128	294.00	PCW 8256	439.00
CPC 6128 colour	399.95	**PCW 8512**	**569.50**

PRINTERS – CARRIAGE £7.00

Amstrad DMP2000	154.00	Juki 5520 (colour)	399.50
Star NL10	259.00	Daisy Junior	209.50
Citizen 120D	199.95	Juki 6100	345.00
Epson LX80	239.00	Brother HR15	382.95
Seikosha SP1000	229.00	Epson HI80 plotter	389.00

CABLES – Carriage free!

1 metre	9.95	2 metre	10.95
Printer extension cable set for PCW8256/8512			**11.50**

RIBBONS – CARRIAGE FREE!

Amstrad PCW8256/8512	5.50	Amstrad DMP2000	5.50
Shinwa CP80	3.99	Epson MX/FX/RX 80	3.60
Kaga KP810	4.99	Epson FX/RX 100	5.20
Canon PW1080	4.99	Epson LX-80	3.90
Juki 6100 s/s	1.65	Seikosha GP80/100/250	3.75

PAPER & LABELS – CARRIAGE FREE!

2000 sheets per box		Price per 1000 labels	
Exact A4 70 gsm	19.45	3.5" × 1.5" 2 across	6.95
11 × 9.5" 60 gsm	14.95	2.75" × 1.75" 2 across	6.25
12 × 9.25" 60 gsm	17.25	2.75" × 1.75" 3 across	6.25

MODEMS – CARRIAGE £6.00

Pace Nightingale (for CPC464/664/6128) (inc. Interface, lead & Commstar)	161.00	Miracle WS2000 (modem only)	112.00

UPGRADE FOR PCW8256 – POST FREE!

Set of 8 chips to give 369k on drive M: – equivalent to 8512 **47.50**
Full fitting instructions included.

DISK DRIVES – CARRIAGE £6.00

Amstrad FD2 (for PCW8256)	**150.00**	720K drive (for 664/6128)	205.00
Box 5.25" drive for PCW8256 360K drive	175.00	Cumana CS001 3" drive	87.00

(Please state machine type when ordering)

3" DISKETTES – POST FREE!
SUMMER SPECIAL PRICES!!

Price per 10 CF2 disks	34.95	5 CF2 disks	18.50

PERIPHERALS – POST FREE

AMX Mouse	64.50	Joystick	14.95
Serial I/Face 664/6128	49.00	Serial I/Face 8256/8512	62.50
Speech Synth 464	29.95	Speech Synth 6128	38.50
Light Pen	19.95	Grafpad II (disc)	75.00
64K RAM board 464/664	96.75	128K RAM board 464	109.00

SOFTWARE – POST FREE!

SAGE		**CAMSOFT (for PCW8256/8512)**	
Popular accounts	95.50	Cambase database	47.50
Payroll	58.95	Stock Control	47.50
Accounts + payroll	139.95	Sales ledger	47.50
Invoicing & stock	59.50	Nominal ledger	47.50
Database	59.50	Sales/Purch/Nom.	94.95
Chit Chat + combination	92.50	Payroll	47.50
GEMINI Datagem 8256/8512	37.50	Invoicing	47.50
Office Mate (disk)	17.50	Purchase ledger	47.50
Office Master	23.95	Stock/Invoic/Sales	95.00
ARNOR Protext AD2-ROM	47.00	Stock/Invoicing/Sales/	
Protext Eprom	37.95	Purchase/Nominal ledgers	144.95
Protext Disc	24.95	**AMSOFT** Supercalc II	44.95

THIS MONTH'S SPECIAL OFFER
UPGRADE YOUR PCW8256!
AMSTRAD 3" 1MB DRIVE + UPGRADE CHIPS ONLY £179.00

Access

VISA

All prices include VAT. Please telephone if you do not see the item you require.

A FISTFULL OF JOYSTICKS

A bad workman blames his tools, if your high scores are not up to scratch then perhaps you need some help in your hand. Rupert Goodwins susses out the latest joystick offerings.

"Great" I thought when asked to do this review. "Spirit of the Sixties and all that. Can't wait!". So I donned my kaftan, lit up a ginseng cigarette (splutter) and wafted down to the ACU pad. "Hey, waddya got?" I asked the mellow, laid-back Ed Simon "Stony" Rockman. "Sandal wood? Rose? Columbian Cow Sh...". "No, I don't think you heard me right", said the man; "Joysticks. Not Joss sticks. And why are you smoking that compost heap?". Sigh. Mid-Eighties decadence strikes again. Forget the peace, man, and zap them aliens.

The scientific approach

Sadly disillusioned, I trudged back with a fistful of joysticks to my computer lined abode and kicked off my sandals. First problem: How To Judge A Joystick. The obvious way, that of playing a number of games, has its drawbacks. When I play a game, I play a game. I don't think about the joystick unless it's really bad, although after the action's over I no doubt have an opinion of the sweaty shaft grasped in my mitt.

Everything else has benchmarks, I mused. Thus the Goodwins' Automatic Non-specific Joystick Appraiser was born. This marvel of modern programming technique has three stages. First, put a blob at a random position on the screen. Move a cursor on to it, and time how long it took to get it there. Second, move a blob around the screen in a fairly random fashion. Try and keep the cursor on top of it, and record the ratio of success to failure. Third, waggle the joystick as frantically as possible and record the average speed so obtained.

These three tests should test accuracy, responsiveness and sheer, er, waggleability. There's nothing quite like a good waggle... And the final test for each stick is the traditional intensive games playing bout, involving Starion, Spindizzy and Way of the Exploding Ferret – three of the more joystick-dependant games. Despite the technical reservations, there really isn't any other way to get a feel for a joystick.

Wiz Card

First into the ring was the slightly mystic Wiz Card (or Drac Ziw for black warlocks). Now this doesn't look or sound much like a joystick, and I was initially rather dubious. After all, it resembles a cursor key cluster to a remarkable degree and there's already one of those on the keyboard, thank you very much. In fact, it's billed as "The ultimate cursor controller" – not a joystick – but it's difficult to see quite where the advantage lies. Until you use it.

Like a cursor cluster it takes just a finger to use; unlike a cluster there's less than a centimetre between the centre of each key. This gives it a responsiveness similar to a joystick, but with much less effort. Herein lie a small problem or two, as it is very easy to press the wrong key at the wrong time and there goes another planet (genocide was never so easy).

Another manifestation of this funny is that, by pressing down on the centre of the pad, "impossible" directions such as up, down and left can be generated. But given a bit of time and a steady hand, it can really give a bona fide joystick a run for your money with most games.

It just doesn't work for some. Exploding Fist was significantly more difficult with the Wiz. The card should enjoy a long and happy life as there's less strain on the system and fewer moving parts than with a joystick.

Inside, the system uses a similar technology to calculator keyboards, each key has a small pad of graphite in a rubber cup which presses down on to a pad of exposed printed circuit board. Sounds a wee nasty, but it works. And, as they say in the adverts, goes on working. It should come into its own with graphics utilities and icon-based games, but isn't ideally suited for use as a sole stick.

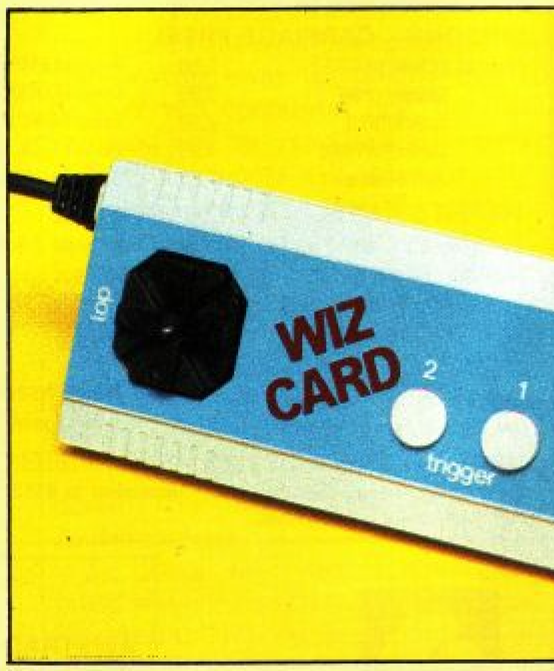
Pro Ace Competition

The next stick under scrutiny was the Pro Ace Competition Joystick. This beast clearly shows its ancestry from the arcade games of yore (Yore is a small island, just off Japan, which specialises in making objects over five years old).

The word that best describes this stick is solid, and the word that best describes your hand after a good Pro Acean thrash



Pro Ace



Wiz Card

is numb. One hand has to be used to hold the base down on a solid surface. It can be very tiring handheld as the forces involved in moving the shaft are just too great. If you're worried about muscular atrophy as you spend your life hunched over a computer, then worry no more. Your legs might wither away, but you'll have wrists like Rambo's shoulders. If you're not into pumping nylon then this is not for you; there's just a bit too mucho macho muscle needed for precision, on-the-pixel sprite bopping.

In the tussle with the mad aliens in Starion, for example, time after time I overshot or failed to move because I'd applied too much or too little pressure. That can be serious when you're battling to save the Galaxy (again).

The lack of a top fire button is also a bit miffing (a bit miffing – traditional cry upon unpacking a kit of parts for a radio and so on. "There's a bit miffing!"). Interestingly, there is an extra switch below the shaft. This is connected across the fire button – if the centre of the shaft was drilled out then a short length of stick would do the job. But it's easier to buy a better stick.

Also missing from this stick is any form of feedback. There is no way of telling when you've moved the shaft far enough to engage the contacts. As there is quite a lot of free movement, or throw, on the shaft (it feels a little like a Morris 1100 gearbox) this is quite a problem. The overall effect is a bit like stirring treacle, not the most enervating response (again, like a Morris 1100).

On the plus side, the construction oozes solidness and durability. But games playing was not a pleasure with this stick. Spindizzy was a bit of a battle, the effort required sadly slowed the old reponse time down to a three-pint level. Starion was similarly painful – pitting a Morris 1100 against the latest in interstellar nastiness takes the edge off things. Way of the Exploding Fist became Path of the Limp Wrist.

This stick can take a lot of punishment and will outlast many of its feebler competitors. But do you really want to stir treacle for that long?

Micro Ace

Next in the firing line was the Pro Ace's big brother, the Micro Ace. It looks very similar, the only visual difference being the tastefully done but oh-so-bright red colour of the shaft as opposed to the Pro's mean black. Buried inside is the main change – microswitches instead of leaf switches.

Microswitches are designed as sealed units, and are both more reliable and more accurate than their poor tree-borne cousins. Arcade games the world over use microswitches in their joystick units for these very reasons, and the Micro Ace feels not dissimilar to many a games console. The biggest plusses are feedback – there's a reassuring click that can be felt as well as heard – and a more responsive, less musclebound feel as the shaft travels much less in changing direction.

It still needs a fair flick o'the wrist to move yer marble or spin yer starship, but this time it's not so bad as to nobble nimbleness. It's also feasable to handhold this one, and in this mode it acquitted itself well with all three games. Construction is again solid and bomb-proof, and this is a stick which should be given some serious thought by the avid gamester.

Sure shot triplets

And then I opened the second box, only to be confronted by a minor dilemma, name of Sure Shot. Or rather three of them. A trio of similar joysticks with the same name. Two with short, bulbous shafts and one with a long, tapering rubber-coated waggly bit (Roget is short on shaft similes). The difference between the first two (short and bulbous) is that one has a top fire button – hooray! Other than that, snap.

Microswitches take care of direction dictation and the fire buttons on the base. The version with the top fire button utilises the "stick up the hole" principle detailed earlier. Fine in theory, but it does have the problem that it becomes more difficult to move the stick when the top button is pressed, as some graphics packages demand. Apart from this, the feel is pleasant enough.

The lightness of touch needed comes as a welcome relief after the rigours of the Pro Ace, but there is still a little muddiness in the action. This should concern none but the purist, as otherwise this stick has little to fault it. The design is sturdy and the throw limited to almost the right extent.Altogether, overall a pleasing but vanilla flavoured product.

The third Sure Shot is a little more eccentric. It uses the same mechanism as its top-buttonned bulbous sibling, but the shaft is more than a third as long again and it has a much longer throw. This slows down responses with position-critical games (Spindizzy does not play well with this one), but gives a greater latitude for expression with wrist wrenching combat. Should anyone write a ballet simulator (Rambert on a rom board?), this will be the stick to use. Like the Wiz Card, it has its uses, but it is not a good all-rounder.

Zip stik

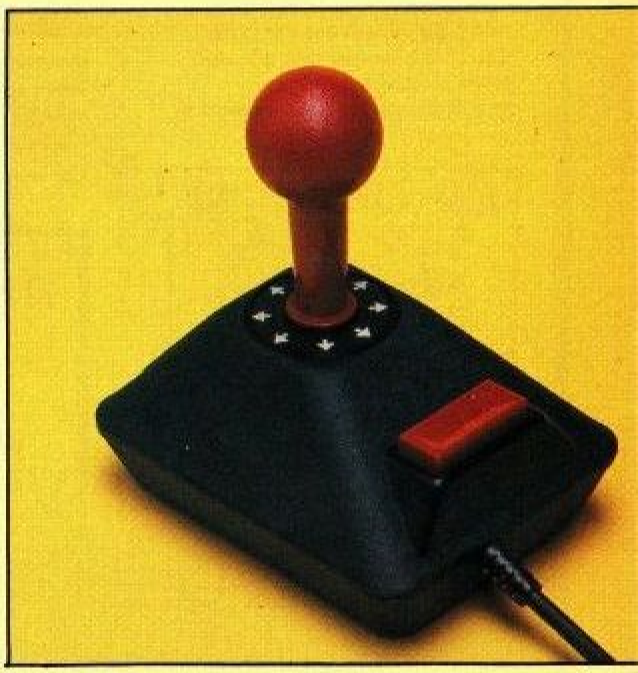
Deservedly last, and certainly least, is the Zip Stik. As lively and supple as a dead stoat, as much fun as a smallpox vaccination, as responsive as your local MP. Do you get the idea? The long shaft might make a good dibber to plant



Sure Shot



Zip Stik



Micro Ace

potatoes with, if potatoes are your bag. Other than that, the watchword for this little gem is avoid.

Joystick judgement

And then there were none. Having waggled my way through my fistful it should be clear just what to avoid. The best? That's less obvious. As good multi-purpose gamesticks, the Micro Ace and the two stubby Sure Shots are much of a muchness. Both rather good, both a little boring.

The Micro Ace is perhaps better for those who like to use a little muscle in their monster mauling; the Sure Shot has more to recommend it to the fine-tuning merchants. The Wiz Card and Rubber Sure Shot are both more interesting and more specialised, best used with certain classes of program. The Pro Ace is missing a brain, and the Zip Stik is best kept for those who think a joystick is a kind of lolly. In the end, it's up to you which stick suits your style. Make sure you can give any shop's range a test drive before plumping. Take along your favourite program and ask for a demo before parting with your cash. Remember – the Galaxy depends upon YOUR joystick!

STOP PRESS

Things are always moving in the joystick world, and after some intensive research *(OK, so you opened the post – Ed)*, I learnt of two new joysticks. The Quickshot II Turbo looks fantastic in a glossy red with rubber grips. The new micro-switch Quickshot will cost £13.95. Another newie is the Cheetah. The Mach 1 will cost £14.95 and will be available real soon now.

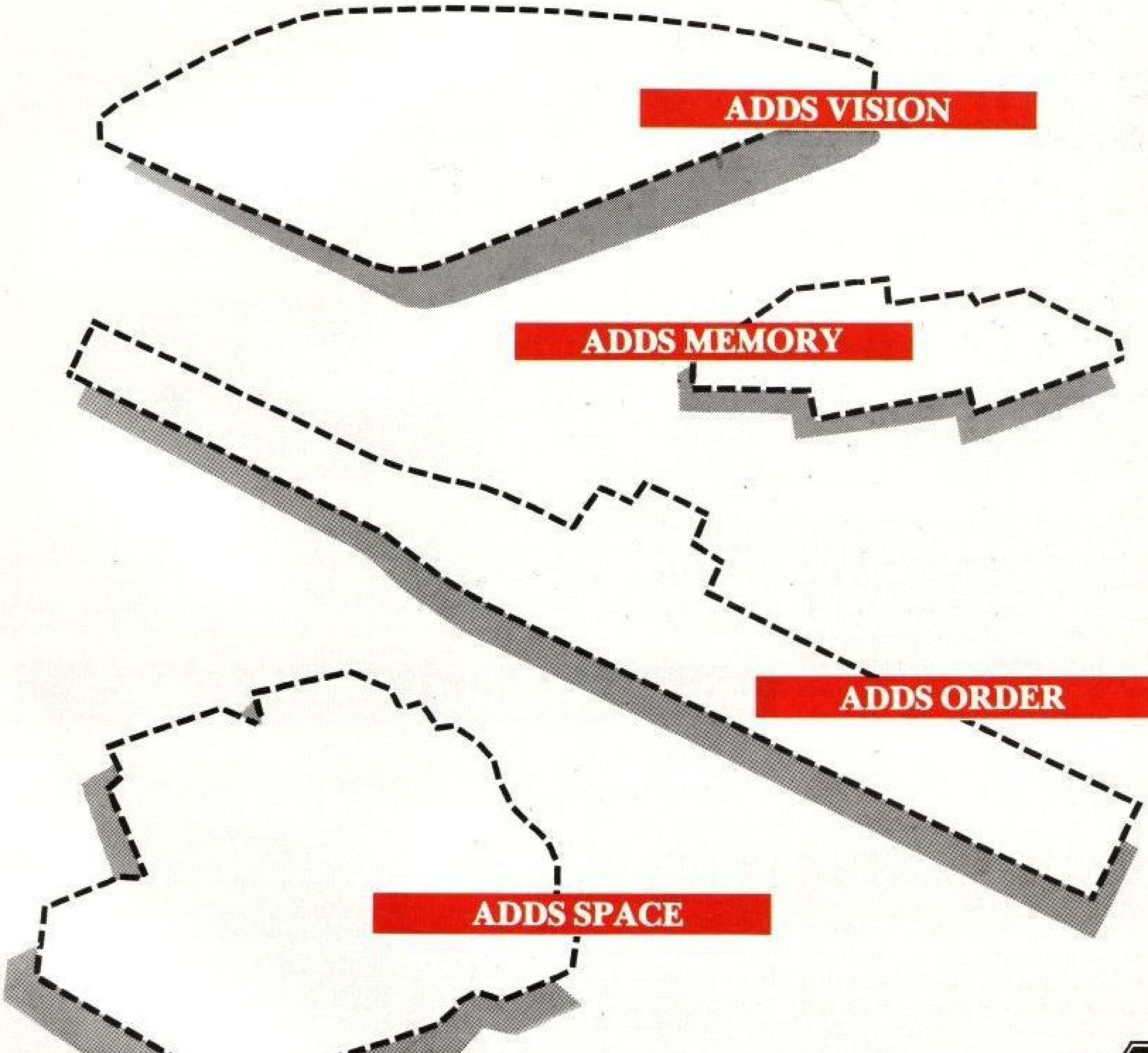


Goodwins' Automatic Non-specific Joystick Appraiser Benchmarks

	Accuracy	Response	Waggle-ability	Overall
WizCard	80	62	55	66
ProAce	71	67	61	66
MicroAce	83	75	72	77
SureShot1/2	81	72	80	78
SureShot3	67	65	62	65
ZipStik	65	51	59	59

ACU

WHAT IS COMPUTER ADDWARE?



SBS Data Services Ltd

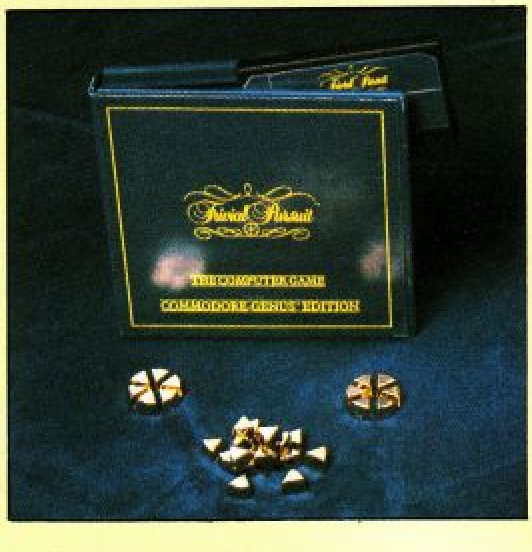
UNIT 3 · CLARKS INDUSTRIAL ESTATE · NEWTOWN ROAD · HOVE SUSSEX · TEL: (0273) 726331. TELEX 878226

IT ALL ADDS UP TO REAL VALUE

WIN A £10,000 game

– it's such a trivial matter to enter!



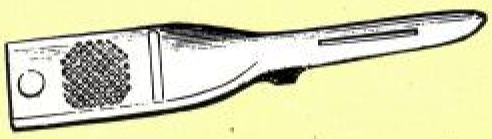


This competition is a bit different. Domark has won the hotly contested rights to produce a computer game based on Trivial Pursuit. Like most brilliant ideas Trivial Pursuit is simple – it involves moving counters around a board but the crux of the game is that it only features "questions of no vital importance".

Trival Pursuit has swept the world and now it is poised to take on the micro. Just to prove they are really clever at programming Domark will supply the same question tape for the Amstrad, Commodore and Spectrum. This will make it really easy to add questions.

The prizes

First prize is a Trivial Pursuit set. All the playing pieces, trays, segments and die will be craftsman made of solid gold. Domark estimates that it is worth £10,000. To win this you will have to compete against winners from other magazines *(Are there any*



other magazines? – Ed) in a real game of Trivial Pursuit. To get to that game you need to win this one.

In best TV quiz show tradition there are prizes to be won on the way. The winner and four runners up in the *Amstrad Computer User* contest will win a copy of the new Genus II Edition of Trivial Pursuit. Another 10 runners up will receive a pack of Trivial Pursuit After Dinner mints.

The winner then goes to London – all expenses paid – for the final and then hopefully on to fame and glory.

How to win

Below you will find three trivia questions. Select the correct answers and then complete the tie breaker. You have to compose your own Trivial Pursuit question, and if it is good enough it may go on to feature in the game. Trivial Pursuit questions often have a hint within the question – if you can add this to your entry then please do.

Rules

1. The winner will be the correct entry which the *ACU* judges decide offers the best Trivial Pursuit question.
2. All entries must arrive by Monday, September 22, 1986.
3. The competition is only open to readers within the UK.
4. You may photocopy the form but only one entry is allowed per reader.
5. The judges' decision is final. No employees of *ACU* may enter.

Our questions

1. Which was the first Beatles single to be released in the UK?
a. Love me do
b. Please please me
c. Help!

2. What was the world's first commercial computer called?
a. LEO
b. Mark IV
c. Colossus

3. Who wrote "Lord of the Flies"?
a. William Golding
b. William Shakespeare
c. William Poel

TRIVIAL PURSUIT ENTRY FORM

1. ____________

2. ____________

3. ____________

My Trivial Pursuit question is: ____________

Name ____________

Address ____________

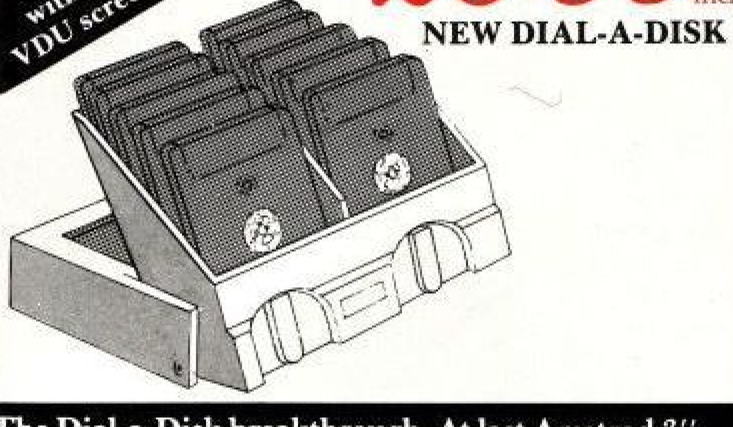
Send to: Amstrad Computer User, Domark Competition, 169 Kings Road, Brentwood, Essex CM14 4EX.

ADDS SPACE

FREE with every order - VDU screen cleaning kit

£6·99 incl

NEW DIAL-A-DISK



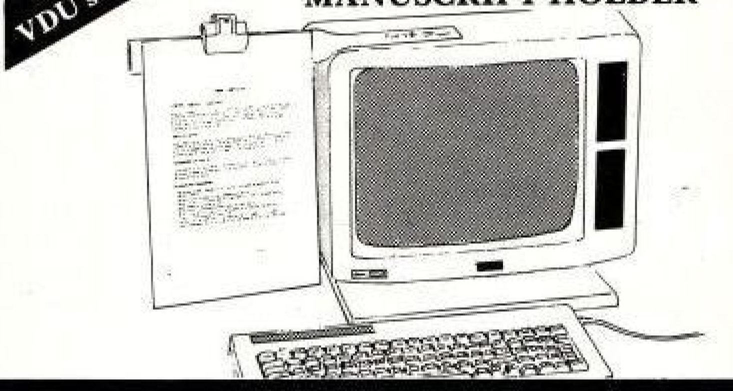
The Dial-a-Disk breakthrough. At last Amstrad 3″ Diskettes can be stored, protected and retrieved as you wish in a robust, convenient and innovative container and display panel combined.

ADDS ORDER

FREE with every order - VDU screen cleaning kit

£6·99 incl

MANUSCRIPT HOLDER

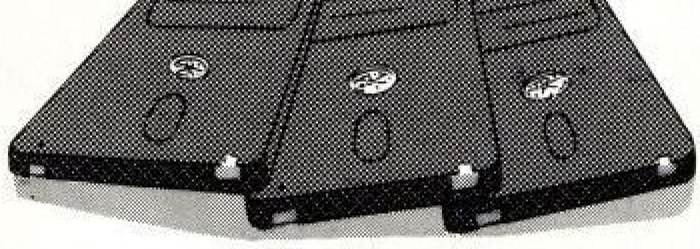


Create more space and reduce VDU operator eye strain. This new holder fastens to the terminal, holds manuscripts at the optimum angle for viewing and can be tidied away when not required.

ADDS MEMORY

FREE with every order - VDU screen cleaning kit

£34·50 For 10 incl



ALSO AVAILABLE 5 PACK £19.44

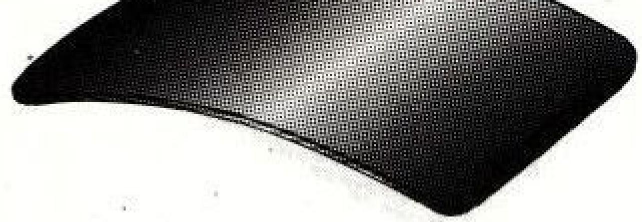
What you forget, your computer remembers. But don't forget that SBS supplies Amstrad Diskettes at attractive prices with a rapid delivery service.

ADDS VISION

FREE with every order - VDU screen cleaning kit

£29·99 incl

SCREEN FILTER



The Polac filter – the VDU operator's dream. It eliminates reflection, reduces eye strain, defines character more exactly and enhances accurate reading. Simple, easy – Fit one for clearer vision.

Computer Addware is quite simply all the sundries which enhance the performance of your Amstrad computer system. We, at SBS, have coined the word because we feel it says it all about what a difference these accessories make. The pictures show only a fraction of what we can add to your system and we operate a fast professional distribution service to supply your needs. Contact SBS Data Services because it's not just computers which can do their addition, fast.

ALL PRICES INCLUDE VAT — PLUS — FREE NATIONWIDE DELIVERY

PLEASE SEND ME	DESCRIPTION	QTY	VALUE
LARGE STOCKS AVAILABLE ACCESS AND VISA CARDS ACCEPTED	DIAL-A-DISK		
	MANUSCRIPT HOLDER		
	3 INCH DISKETTES		
	SCREEN FILTER		
	● TOTAL ORDER VALUE		

I ENCLOSE A CHEQUE PAYABLE TO SBS DATA SERVICES LTD

NAME ______

ADDRESS ______

TEL ______

FOR IMMEDIATE DESPATCH ☎ OUR 24 HOUR HOT LINE (0273) 726331 (10 LINES)

UNIT 3 · CLARKS INDUSTRIAL ESTATE · NEWTOWN ROAD
HOVE · SUSSEX · BN3 7BA · TEL (0273) 726331 TELEX 878226

SBS Data Services Ltd

IT ALL ADDS UP TO REAL VALUE

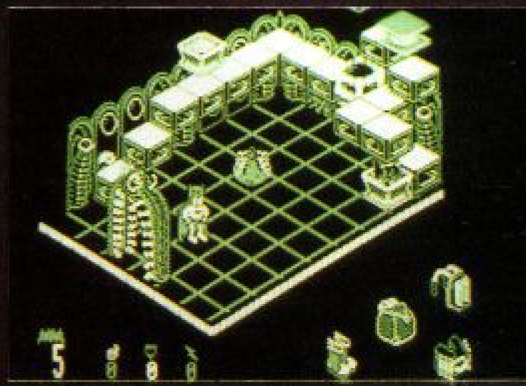
GAMES the PCWs play...

We never thought it possible, but suddenly the Joyce has become a games machine, not just for adventures but for fully fledged arcade action too!

After a hard day at the spreadsheet, have you ever wished you could do something more relaxing with your Joyce? You won't be getting all the frills that the alien zapping generation demand as standard – none of the Technicolor splendour of the CPCs or deafening blasts as you once again save the universe.

But though the hardened gamesters may turn up their nose at these shortcomings, the green screen image is crisp and sharp, the speaker can generate just enough noise to add atmosphere, and what the best programmers have done with a machine that can't even officially handle animated graphics, is nothing short of stupendous.

Jerry Muir reviews what's new for the all action Amstrad PCWs.



Batman
Ocean
£14.95

This is programming of the highest order on any machine – on the Joyce it's nothing short of miraculous. To rub salt in the wound, Ocean managed to sneak it out before the other, less spectacular offerings appeared.

Batman and his ilk are termed "arcade adventures" which means there's adventure game problem solving plus physical tests. More specifically it's in the Ultimate style, but all that deceptively definitive term indicates is that you have a slightly raised, overhead view of the rooms that comprise the Batcave.

Robin has been captured and the bits of the Batcraft are scattered around our hero's subterranean lair. Before he can fly off and rescue the Boy Wonder Batman has to reassemble his jalopy, though even before that he has to locate four vital pieces of equipment.

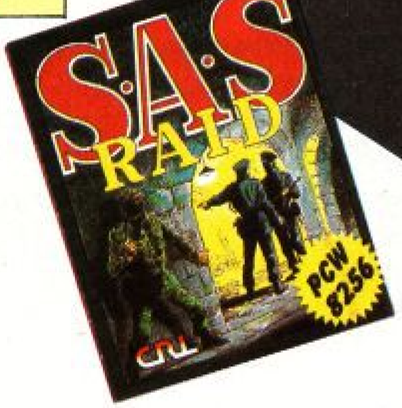
The Batcave is a hostile place. It's full of roaming monsters and even some walls result in instant loss of Bat-life on contact. Luckily all the pests follow set movement patterns so it's possible to avoid them with planning. Other problems include conveyor belts and apparently solid platforms that crumble when you step on to them. It's enough to make a Batman hang upside down and go back to sleep.

For the experienced gamer, Batman is one of the year's finest releases. With its vast number of rooms – which make mapping a must, and increasingly ingenious problems, it will take ages to solve. It's written with just the right blend of humour and contains some clever touches, like the reincarnation stones that let you pick up a game after your last life is lost. The keys are also redefinable which is vital because the default controls are awful.

For a Joyce owner looking for that brief respite from Locoscript it may be too much though. You wouldn't expect to become a fully fledged superhero overnight, would you?

This is a brilliant game, but it may be just too brilliant for the newcomer to the delights of computer gaming!

SAS Raid
CRL
£14.95



This one is an oddity. It's not really an adventure though it's certainly not an arcade game. If you think of it as a strategy game you won't be far wrong.

The raid consists of two parts. In the first you cross hostile territory, patrolled by enemy guards. This really means moving round a grid, the extremes of which connect so that horizontal travel is effectively circular.

At the northern edge lie a series of obstacles, but around the countryside useful objects such as ropes and torches are scattered. There's also a uniform for disguise and a gun, plus an invaluable radio and map which alert you to where those patrols are heading.

Once you've found the sector that leads to the castle, which is very much trial and error, you're into the second part, where you have to search a series of rooms, only two of which contain items you want. Behind the other doors lie tests of your reactions, powers of observation and mental agility. If you fail at this stage it's straight back to the start as you're shot as a traitor!

With its spartan graphics this won't be making any top 10 of the year's games but it is a challenge in an abstract sense, and even if it does remind you of the sort of thing you'd play with cardboard counters, it's a reasonable diversion for the price.

Invaders
Supernova Software
£12.95

Turning to the pure arcade game – in fact probably the purest arcade game - we find none other than those old Space Invaders lurking at the top of the green screen.

Is there anybody out there who has never played this? There was a time when every club, pub or public place seemed to have one of these machines. Now if you play one you're likely to be struck by how primitive the simple combination of dodging and shooting is, compared with today's top machines . . . and how addictive that simple formula is.

Invaders was always a favourite for new home computers, if only because it was simple to program. No doubt this didn't give its programmers too many sleepless nights. All it takes is a horizontally moving missile base, rows of invaders pelting you with boulders or fireballs or whatever invaders pelt earthlings with, and a collision routine.

It's all proficiently done, though it's annoying not being able to fire while moving, but at this price many people's reaction will be, "So what? It may have a horrible fascination, but it doesn't seem to get anywhere pretty fast". And the £13 asking price is an awful lot of 10 pence coins down the slot for a slice of nostalgia.

Fairlight
The Edge
£14.95

Fairlight has been around a little longer than Batman. Its hero, Isvar, has been around for ages because this little warrior, who looks like he's straight out of Noggin the Nog – I'm showing my age – is a Scandinavian serf, transported to the courtyard of Castle Avars by a wizard who wants out.

This example of the ubiquitous Ultimate style puts the 3D view to different effect. While Batman presents a series of puzzles that must be solved in a set order, Castle Avars is an open area of chambers, caverns, battlements and towers, with the odd secret passageway thrown in for good luck.

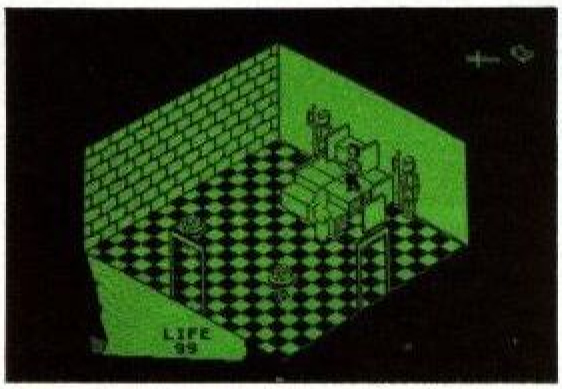
There is no one solution to Fairlight, just as there is no one way to solve a problem in real life. As you wander you'll realise that you're using exactly the same techniques as you would if you really were this diminutive hero. In the end you may even identify with him.

Credibility is the key to Fairlight's success. The castle is fully realised in physical terms so that you can map it, and perhaps use your plan to locate those hidden areas. All the objects you'll find inside it have weights and you can only carry so much at any one time.

There's a wonderful selection of wandering guardians, ranging from elemental whirlwinds to rejuvenating trolls.

Unlike Batman, though, there is less sheer arcade action and once a foe has been vanquished in combat you should be able to work out a method to stop it reappearing.

The only annoying feature – and I'm willing to believe it was unavoidable considering the programmers have had to create a complete graphics handling system – is the long blackout between screens. This is obtrusive at first, but

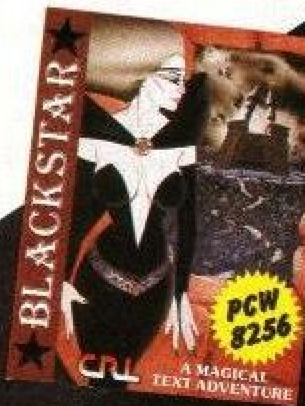


eventually you'll learn to live with it.

Fairlight is an ambitious adventure that takes a lot of solving but because it doesn't call for quite the same arcade experience as Batman it's probably the most universally acceptable of all the programs.

But don't expect to sit down and play it during your lunch hour... you'll suddenly find it's 5.30pm and you're still searching for the key to that locked door!

Castle Blackstar
CRL
£14.95



Blackstar, a traditional text adventure, is a veteran of several other micros and is a standard implementation of a standard adventure theme.

As an adventurer transported to a clearing in a mystical forest, not more than a few strides from the mysterious castle of the title you must find an orb and return it to a beautiful woman who appeared to you in a dream.

Wandering round the imposing edifice reveals no obvious entrance, though a little deduction will reveal that the key to this puzzle is just one shot away. Once inside the keep there's a maze of rooms to investigate and objects you'll need in your ongoing adventure.

This is all very much first generation adventuring, compared with the sophisticated interactive fiction now available. The descriptions are somewhat stark and the authors seem to have thrown in everything but the kitchen sink, though maybe that's in one of the deeper recesses of the labyrinth.

However there are probably newcomers who would welcome this rather uncluttered, straightforward deduction. It's just that soon you'll want the added atmosphere of a Level 9 title, the sophistication of The Hobbit, or the sheer genius of Infocom. ACU

SPEECH!

was greeted with admiration and acclaim by the computer press

(for the BBC Micro)

"Overall an excellent package.

Value for Money	5
Presentation	5
Use of Machine	5
Ease of Use	4
Facilities	5
Effectiveness	4

Total Score out of 30: 28"
MICRONET 800, December 1985

"Superior Software's SPEECH! is a quite remarkable piece of programming. .... The program takes up 7½ K of program space and is incredibly easy to use. It merely requires a new command word which is SAY preceded by a *. ... The end result is as good as anything I've heard this side of the Amiga and it'll make a stab at even the most ludicrous words constructed without vowels and at great length. ... It is possible to add words to the computer dictionary where they are not said exactly as they would be, using phoneme analysis and also to vary the pitch of the spoken voice. ... Why pay more?"
Popular Computing Weekly, 19-25 December 1985.



"The reproduction is suprisingly good and certainly on a par with some of the more expensive speech interfaces I have heard. All in all, an excellent low cost speech system that really is very good value for money."
Bruce Smith, Acorn User, February 1986.

"SPEECH! from Superior Software is a truly remarkable offering. A rare gem indeed among the morass of mediocre to competent efforts which dominate a reviewer's postbag. In my view SPEECH! is an absolute breakthrough for the BBC micro which deserves to sell by the thousand. ... Superior Software has produced a price breakthrough by achieving an apparent technical impossibility. David Hoskins, the programmer, has cleverly programmed the sound chip to do things which its designers never intended it to do. ... A most practical application example-also provided is a spelling checker. This has always been a problem case for educational software — how to test spellings without printing the word and revealing all. ... This program is well designed and effective and users are encouraged to customise it with their own examples. In short, SPEECH! is a very clever and useful program being offered at a silly price. If you were planning to buy another arcade game, take my advice and spend the money on SPEECH! instead."
Jonathan Evans, A & B Computing, March 1986.

"SPEECH! is the most talked-about package ever created for the BBC Micro. For the first time it endows your micro with the power of speech for an incredibly low price."
Christopher Payne, The Micro User, April 1986.

"If I were a manufacturer of a speech synthesis product I would be greatly worried by the arrival of SPEECH! This is one utility that cannot be beaten on quality or price.

SOUND	9
GRAPHICS	n/a
EASE OF USE	9
VALUE FOR MONEY	9
OVERALL	9

James Riddell, The Micro User, June 1986"

COMPETITION COMPETITION COMPETITION COMPETITION

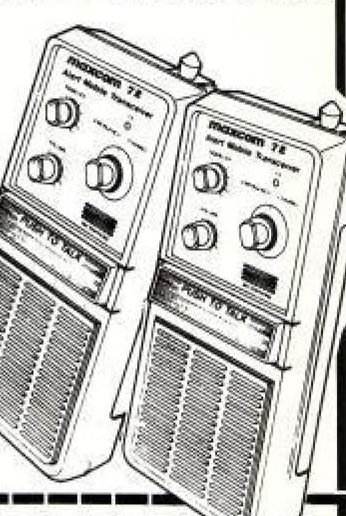
THE QUIZ

1. In which year did Superior Software release their first software cassette?
2. Can a computer be manufactured without using integrated circuits or transistors?
3. Which U.K. company manufactured the coin-operated arcade machine of the successful game Hunchback?
4. Name the author of Superior Software's SPEECH! program?
5. What was the name of the acclaimed home computer sold by Commodore before they produced the Commodore-64?
6. Which Superior Software game won the "Computer Gamer" Game of the Year Award for the Best BBC Game of 1985?
7. Name the Managing Director of Amstrad Consumer Electronics PLC?
8. Which of the following is not a valid phoneme representation as used in Superior Software's SPEECH!
EE UH C M NX ZH
9. What does the acronym ASCII stand for?
10. How do you spell the word "azure" phonetically in order to be pronounced correctly by the *SPEAK command of Superior Software's SPEECH! program?

Describe the most useful application of SPEECH! that you can envisage. (Please write your description on a separate sheet using more than 50 words, but not more than 200 words).

HOW TO ENTER
To enter, simply complete the 10-question quiz (on the left), and describe what you think is the most useful application for SPEECH! The completed entry form should be sent to Superior Software at the address given below.

THE PRIZES
Each entrant who answers the 10 question quiz correctly will receive a colourful SPEECH! badge (pictured left). All correct entrants will then be considered for the main prize of a pair of professional walkie-talkies (valued at **£200**), a trophy, and the cash prize of **£100.** The winner of this prize will be determined at the close of the competition on 31st January, 1987. The winner will be the person who has correctly completed the 10 question quiz and, in the opinion of the judges, describes the most useful application of Superior Software's SPEECH! program.



RULES
1. All entries must be accompanied by a completed entry form and a description (on a separate sheet) of what, in your opinion, is the most useful application of SPEECH!
2. All entries must clearly show the sender's name, address and age (if under 18), and should be addressed to: "SPEECH! Competition", Superior Software Ltd, Regent House, Skinner Lane, Leeds LS7 1AX.
3. The closing date for receiving entries to the competition is 31st January 1987.
4. The company's decision is final and no correspondence can be entered into.
5. The competition is not open to the employees of Superior Software Ltd, the authors of SPEECH! their agents or their families.

1		6	
2		7	
3		8	
4		9	
5		10	

Name ______________________ Age (if under 18) ____________

Address ______________________

____

Telephone ____________

ASSEMBLY

So you want to be a contender? Up there in the limelight, having written the latest megagame? Well, you are going to need an assembler. Chris Wood has monitored the market, compiled his thoughts and assembled this review.

Adam
Audiogenic Software

First impressions are fairly good. Although the manual is only 16 pages long it manages to tell you everything you need to know and is written in an easy, friendly style.

The assembler/editor/disassembler/monitor are all in the one block of program which is just 10k long, which seems quite short for all the bits together.

The program is relocatable and can go anywhere between 1,000 and 28,000.

When you load Adam you are greeted by a fairly short sign-on message, the state of the ROMs and the hex/dec mode of the monitor.

Pressing L will put you into the fairly simple screen editor – no line numbers – and text is entered and moved up and down using the cursor keys.

The CLR key turns the printer on or off.

Text is tokenised – to save space and increase assembly speed – and formatted on entry, but there is no fast way of moving through the text except by leaving the editor and re-entering it with "L label" to place the cursor at "label".

The monitor is also fairly simple, but is ideal for tracing programs. It uses its own internal stack, and its own display routine, which keeps ROM calls to a minimum and seems fairly crash proof.

As well as the normal disassembly and modify memory options you have two trace modes. One runs through each instruction and displays all the register contents, and the other is a significantly faster version which just executes the instructions.

You can exit from either even if the code is stuck in an infinite loop and neither of them will allow the program that is running to corrupt the monitor itself.

The O command accesses the built-in calculator. For example, 0%101 + 13–9 gives the result 15 – 0F in hex mode.

Because the text is tokenised it will not load text from another source. It's not too bad in this case as you are unlikely to have used another assembler before this one, although you are told where to look for the tokenisation table if you want to convert your text.

A quicker way is to use the H command to turn any object code into text which the assembler can then use.

You have the option to include text from tape or disc to use all the available memory. If your program becomes too large Adam will move its symbol table on to the screen memory to make even more room leaving about 30k for object code.

You can move between Basic and Adam without losing your text if you want to run your routines from Basic.

The only thing missing is the option to search for specific bytes in memory. Otherwise it is a very competent beginners package that is perhaps a little overpriced.

Devpac
Hisoft

This was one of the first packages available for the Amstrad as it was converted quite quickly from the Spectrum version, unfortunately losing macros on the way.

The documentation is 56 pages long and comes ring bound in an Amsoft box with the program in two parts.

The monitor is some 8k long and the assembler is about 9k. Both are relocatable and can be called from each other if they are both in memory.

The manual is well written with worked examples of tracing a routine with the monitor and writing one with Gena, the assembler.

Gena has an integral line editor which includes most options you would expect, delete whole line or character, restore line and insert and overwrite modes.

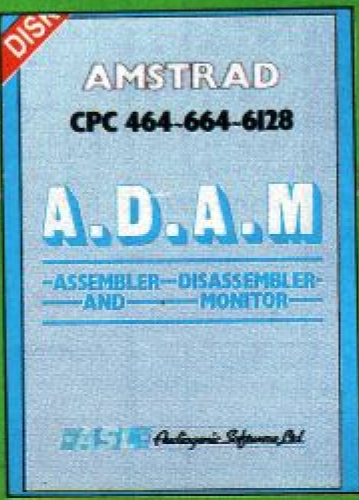
You can only list down through a file using the L command either from the start or from a line number as in Basic.

The only way you can get to a label is to use the Find command although the U command will tell you what the last line number in the file is.

A list of the available commands and their uses can be called up with the H command.

Gena will load most types of near-Ascii files – with or without line numbers – and put them in the correct format.

It will save out pure Ascii without line numbers if you want to use another editor.



LINES

Mnemonics are formatted after entry and spaces turned into Tabs to save space.

Files can be included from tape or disc to leave more memory which gives you about 25k for object code depending on the size of your symbol table, and Gena supports conditional assembly.

External commands are supported such as |DIR,*.SRC to list all your source files.

Calling Maxam's |CAT for some reason returns you to Basic. I don't know whether this is Arnor's or Hisoft's fault. However returning to Gena from Basic is no problem and you can flit back and forth as with Adam.

The monitor gives you a front page in Mode 1 showing all the registers and 32 bytes around the program counter. You may edit this display except for the IR pair.

As well as the normal move and modify commands Mona will single step through routines, allow breakpoints and allow you to step over calls to subroutines.

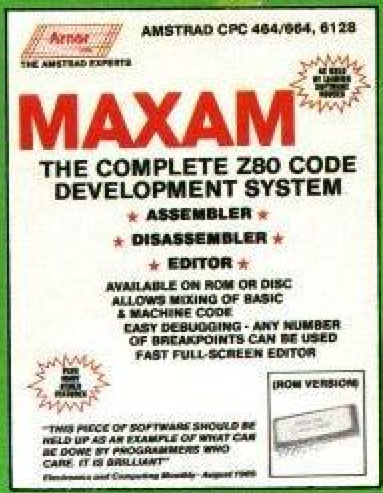
You cannot page in ROMs from Mona – you have to do this yourself, but Mona will then work with them.

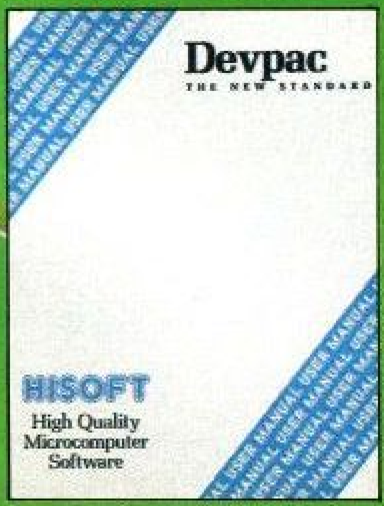
Although there is the option to show some numbers in decimal, output from Mona is predominantly hexadecimal.

Mona will also create text from object code for use by Gena and the search for bytes option is very fast.

Code can also be loaded from within Mona and saved out again, but there is no information provided about the file being loaded.

A sometimes quirky but very useful package.





Maxam
Arnor

The package comes as either a ROM, disc or tape with a 50 page manual.

I used the ROM version which has a few more commands than the disc version as well as giving you more room for text.

The latest versions are now compatible with all types of ROM boards.

Before you even start using the ROM as an assembler it has some useful commands. |HELP will list all the ROMs plugged in and followed by a number will list the commands in it.

You can also make Maxam invisible as well as other ROMs with MAXOFF or ROMOFF followed by a list of ROMs to turn off.

The manual is written clearly with several example programs to show the increases in speed between Basic and machine code.

Maxam will allow you to assemble programs which are stored in REM statements in a Basic program, which means you can use all the normal Basic editing commands if you are used to them, but you may find formatting the text slightly awkward as the Tab key doesn't work in Basic.

By far the best way is to enter |Maxam and use the editor there. From the menu there are options to enter the text editor, disassemble, list memory, page ROMs in and out, move, relocate and compare blocks of memory.

This is really the monitor end of Maxam and is quite limited.

Although there are the options mentioned, there is no way of tracing a routine or of putting in breakpoints, other than the somewhat awkward way of putting in a RST 6, remembering the byte you replace and executing the code from the editor part of Maxam.

This will show you the present instruction and the state of all the registers. This method is a long way of using the only option available which is to insert BRK instructions in your text when you assemble it, but it does work.

The search for bytes option, although useful, is very slow. Whereas Mona will search for three bytes through all of memory in about three seconds, Maxam takes nearly 30 but does provide a more comprehensive search with wildcards.

The editor part of the system is excellent and very easy to use. It is a screen editor which works in either Mode 1 or 2 and Arnor has patched the print routine to make listing a file very fast.

Although when moving through a file the screen is software scrolled, which is slow, you can move very quickly through the file a page at a time, and can instantly get to the top or bottom of your file.

All movement is through the cursor keys using Ctrl and Shift.

One slight criticism is that to do anything to the file, such as search for a string of text and modify it – such as adding line numbers and quotes so it can be loaded from Basic – you have to exit the editor, choose from a menu and return to your text.

It would have been nice to access these options without leaving your text as well as from the menu as some commands are already available in this way.

The editor does not format your text on entry so you must TAB it yourself.

Unfortunately pressing the Tab key just puts spaces in which can more than double the size of your file if you're not careful.

Text may be included from disc and code written out in blocks like other packages. You can assemble 64k with a two-drive system although the same limitations apply with one drive as the other packages.

Single drive users are better off assembling into memory and then saving it out as this gives you more room.

Overall, a very easy to use package that is not quite the complete system Arnor claim, as the monitor is limited, but very convenient to use, especially on ROM.

Zapp
Hewson

This is a very similar package to Adam in that it loads in one block which is about 10k long.

The manual is also 32 A5 pages which is equal to 16 pages of all the other packages' documentation.

The tape system is in operation when you load the program, but you can return to Basic, type |DISC and return to it with a CALL.

Zapp doesn't support external commands, but does have a *CAT command which will work with disc or tape.

The editor, which is line number based, works in Mode 1 and numbers the text in steps of one. Unfortunately each time you enter a line the text is renumbered to accommodate the new line, so this is not very useful in finding your way around the file.

You can use the cursor keys to move through the source listing by line or in whole screens. The search option lets you jump straight to an opcode or label.

Zapp is unusual in that it is a one pass assembler as opposed to a two byte assembler. Normally an assembler will go through the text checking all the labels and storing all label references in a table and matching up forward references with the actual label when it finds it.

On the second pass the object code is generated and all the label values are lifted from the symbol table and put into the code.

Zapp works by moving through the text, creating code as it goes and chaining together forward references to labels, which are then filled in from the end backwards when they are found.

The problem that occurs with Zapp is that only one byte is used to store forward jumps in the chaining process instead of two when it was necessary.

This means that if a jump instruction jumps more than 255 bytes away a chaining error occurs and a dummy jump must be put in, sometimes in the middle of a routine with another jump around the dummy jump.

This could have been rectified and would have made things much easier for the first time programmer.

However, all is not gloomy. If you don't have a disc drive and you are assembling a big program from tape, (A sucker for punishment – Ed) then you only need to load it once for assembly.

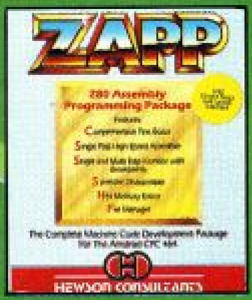
Two-pass assemblers mean you have to rewind the tape for each file pass, or more sensibly save the program twice which obviously takes longer.

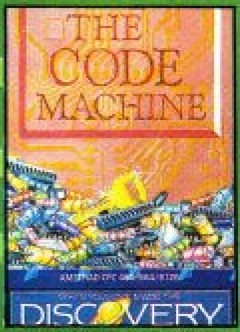
Object code can be disassembled to the screen or printer. Memory can be displayed as hex and Ascii dumps which can be altered.

The monitor allows single-stepping through code, and has the option to put a break after a call to a debugged subroutine but only four breakpoints may be set.

The front panel is fairly simple only displaying all register and flag contents – a little like Maxam's but slightly more useful as it is accessed from setting proper breakpoints in object code, and gives register results while single stepping.

Not quite as simple to use as say, Adam, but if you have a limited system and need the options offered by a single pass package it may be what you need.





Code Machine
Discovery

This package has been taken over by Gremlin from Picturesque to complement its other assembler Pyradev – of which more later – and comes in a video case with a 68 page manual.

The package is in two parts. The monitor is about 8k long and the assembler/editor is some $12\frac{1}{2}$k – both are relocatable.

The manual takes you through all the commands in an easy tutorial style.

The line editor is very similar to that of Devpac with the difference that all commands are accessed by Ctrl and a key to produce a command – Ctrl+D gives delete. Alternatively you can type the commands in full. External commands are supported and there is no problem with Maxam's |CAT which is just as well as you would otherwise have to return to Basic or resort to |DIR.

Text can be assembled leaving the symbol table intact so that multiple blocks can be assembled and the code saved out to be loaded and saved as one block.

This is a very useful feature, even though you have to save off the code blocks yourself.

Another way is to have the code automatically saved out in 2k blocks to disc or tape although if you have only one disc drive you are limited to about 145k of text which will produce 21k of object code on one side of a disc.

This is because AMSDOS will not allow you to swap discs once a file has been opened on it, although there is no problem with two disc drives. You have the option to save COM files suitable for running under CP/M, although you must obviously transfer them to a CP/M formatted disc before they will run.

One slight limitation with this package is that the files can only be saved and reloaded before they can be run, and not run from Basic or the assembler.

The monitor is pretty standard with all the usual inspect, modify, move and disassemble options. You can single step through routines and page the ROMs in and out to inspect them.

There is the option to display the registers, or set up a front page of the registers when tracing a routine, but only one breakpoint at a time can be set when debugging a section of code.

The search for bytes option is fast and you may jump to the assembler if it is present.

There is no option to load or save object code into the monitor.

One of the most powerful of the beginners packages, on a par with Devpac, and easier to use in some respects, but as both packages have features which the other lacks, you must choose for yourself.

Laser Genius
Written by Oasis for Ocean

Laser Genius comes in an unnecessarily large video size box, either on disc or cassette with a 150 page manual.

Now a large manual does not necessarily mean the product is good, but it bodes well. Actually the manual is shared with the Spectrum instructions for the package, but around 80 per cent is applicable to both.

It is quite heavy going, and will need to be re-read several times to get the best from it. References are often made to commands elsewhere in the manual, that have not yet been explained.

The assembler is around 21k long and has two optional parts which can be added to make it 6k longer. The monitor is 14k long.

The editor only leaves you with about 17k for text, but it is tokenised by a ratio of about 3 to 1 which means you can get about 50k of comparable Devpac or Code Machine text.

The editor is a special environment, not unlike a sort of free form Basic. It is a cross between a screen editor and a line editor in that you must have line numbers but they can have 20 or so lines of text after them, so you only really need to number the starts of routines.

Anything you type in that is not following a line number is interpreted just as in Basic, and commands like LIST, CLS and MODE all work.

The difference is that unlike Basic, what scrolls off the top of the screen is not lost. Several screens of text are stored – you can decide how much – and can be freely moved through to get back deleted lines, see previous commands and so on.

When the buffer is full you can either delete it and start again, or just start overwriting it.

External commands are supported although CAT and DIR and disc and tape commands do not need to be preceded by a |.

There is a built in calculator, for signed or unsigned arithmetic, and you can set the base of the calculation to be decimal, hexadecimal, binary or octal.

The editor is a joy to use. When you have typed in a command once, you just place the cursor at the start and press Enter. It will accept anything after the cursor up to the end of the line as a command and execute it again.

The assembler is integral with the editor and contains many unique features. There are the normal options, there are macros and conditional assembly.

There is the option, like Code Machine, to assemble directly from disc to disc although, you can get more object code on a disc, because the text only takes up about a third as much room. Similarly, the symbol table can be saved to continue assembly of several blocks of code. One thing that really stands out though are the compiler like functions provided with the Phoenix language.

You can put in WHILEs and WENDs, define multiply and divide routines to provide results and they will be translated into object code to simulate the functions. Any arithmetic you could do from Basic is allowed and brackets are significant.

The location counter ($) can be used in functions, and lines like ORG ($ AND 0FF00h)+256 will set the origin at the next page boundary, useful for tables.

You may execute your code from within the editor and pass parameters as in Basic.

If the assembler is good, the monitor is brilliant. Working in Mode 1 or 2, it has all the normal options – front page of registers and memory contents around the program counter, disassembly, move and modify memory.

But there are 16 different types of breakpoint. As well as eight normal ones, you may have the option to slow run your code, choosing to update the register display, the memory pointer and current instruction display, both or neither.

And you can set the slow running to just do the equivalent of single stepping through code, or automatically fast run calls to subroutines and return to slow running the part of code you are in.

You can set counters so that code will run through a loop normally a number of times and then jump to slow mode so you can see what happens when it tries to exit its loop. You can have any combination of these and one last type, which is a sort of reverse breakpoint which sets normal running speed again.

You may also list the last n instructions that were traced, as long as you first allocate memory to store the order of the instructions.

The monitor will allow many of the commands that the editor does, such as CAT, DIR and REN. Text can be created to run with the editor.

As if this wasn't enough, there is the analyser. With this you can create options, in a Forth-type language – and there is a short crash course on Forth in the manual – to cover just about every eventuality.

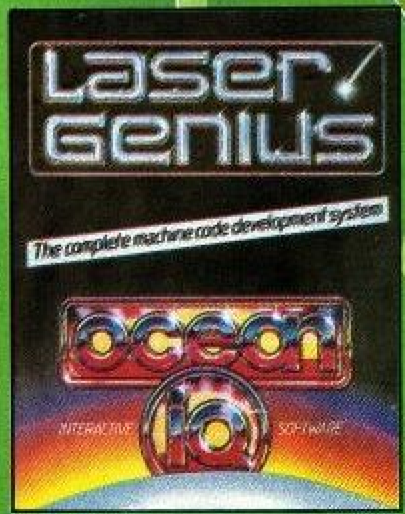
Say your program is crashing and writing something to the screen. You can set the analyser to run any of the breakpoint type options of slow running, but only stop when, say, HL is between 49152 and 65535.

This is simple,because you can set up things like "When the stack contains a certain value, and HL is between certain limits and a loop has been executed n times and D=E+2, then print the registers, wait for a key and continue".

Although the syntax is of course completely different. There is almost no limit to the definitions you can set, and Oasis claims it would be almost possible to write a game of space invaders in analyser language.

This package is a must. Even if you buy another, you must buy this for the monitor and analyser functions. As I said before, the manual is the only weak point, and makes an already powerful package seem even more complicated.

Please bring out a ROM version, Oasis.



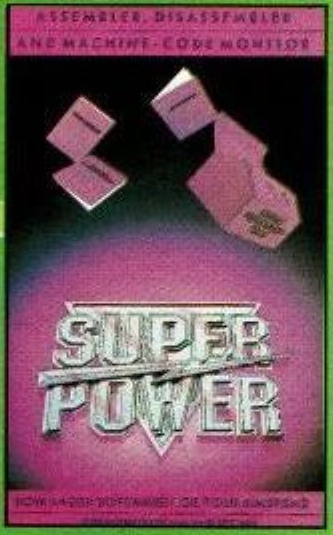
ADM
Micropower

This package comes on two ROMs and has a 46 A5 page manual. It starts off quite gently, but then gets a little heavy.

Many of the examples refer to other commands without telling you where to find them although the features available seem quite useful.

Unfortunately the version I was sent is not quite complete and I was unable to use it properly without constant crashes.

However I have included its specifications in the table so that you may compare it with the other products when it is finished as a proper ROM disassembler would be very useful.



Pyradev Discovery (Gremlin Graphics)

This is Gremlin's second package and is aimed at the complete programmer. You get a 36 page ringbound manual in a video box – plus an extra 42 pages in French.

It is quite tersely written in places considering the number of options available, but the most difficult commands are explained quite fully.

The entire package is run from a small menu program and consists, from the programming point of view, of three parts.

The editor is perhaps the weakest point of the package. It is a screen editor, and you move around with the cursor keys, but the choices of keys are somewhat strange.

It only operates in overwrite mode and the shifted cursor left and right keys are used to insert and delete letters.

There is no actual top of file and you can cursor up and up to make more space. This it does quite quickly, which is strange because it is very slow at allowing you to make space at the end of a file as you type in text, where you would expect to put it.

There is no block copy mode as such – you must block delete and then undelete twice, once in the original place and once where you want the text.

There are a lot of options available from within the editor, such as the option to change the ink colours from the blinding black ink on orange paper and the ability to program the numeric keypad to contain strings of commands.

All of the front ends of the sub-programs are strange in that when typing in the name of the file you want to create or edit, the Delete key is either ignored or prints a graphic character.

It is either necessary to allow the program to search for a nonexistant file, or press Esc to restart the particular sub-program.

This clears the screen and regenerates a catalogue listing.

The assembler is fast and supports macros and, very usefully, free format text. This means that you can type in constants without needing to put a DEFB a DEFW or a DEFM.

Everything can be mixed and will be translated correctly. This is very useful when writing games as data types are often very mixed up, for example ''Hello world'',CR,LF,NULL.

There are many options available on a menu basis to use when assembling, such as turning on and off printing the file to screen or printer while assembly is going on. You have the option to produce .COM files if necessary.

The assembler only outputs the object code in one way, and that is to the same disc as the source is stored on, which means that with a one drive system you are limited to about 20k of object code – if the same ratios as Code Machine stipulates are applied – although if you have a RAM disc or a two drive system you may include text from other sources, but the object code may only be sent to drive A.

Three example files are given which are to test the assembler. Pyradev supports the illegal Z80 instructions which are not a good idea.

Although the bugs that produce them are present in all Z80s, they are not tested and so should not be relied on to work – one day a Z80 will be found in which they don't. If you have to use illegal codes it is easier than typing FD in front of a HL instruction.

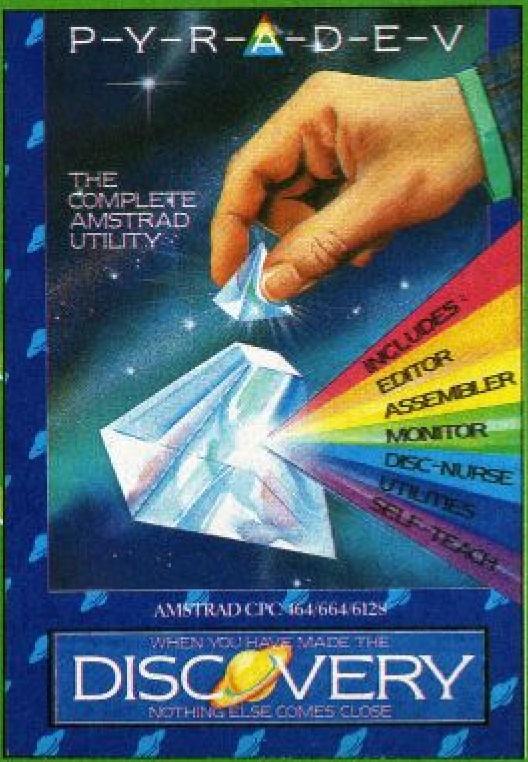
The monitor is of the front page type, and has all the normal options such as single stepping and breakpoints, although there is no option to generate text from object code.

Other utilities found on the disc are a copying program, which will copy programs from disc to disc, disc to tape and tape to disc. These only work with tape programs saved in normal Amstrad format of course.

There is a very extensive Disc Nurse – The name Disc Doctor has already been snapped up – comparable to Hisoft's Knife2, for editing files and sectors on disc.

Pyradev certainly is good value for money, but the editor could do with some improvement, and the Delete key implemented.

I found the ZAP BAKups option on the main menu too easy to select, and meant that I actually deleted a file I wanted. However this was a good opportunity to use the Disc Nurse to recover the file.





Devpac80
Hisoft

Devpac80 is Hisoft's professional programmers package, designed to run under any CP/M system.

The 90 page manual comes in a ring binder divided into three parts. The 22 page tutorial at the end is mostly made up of example listings for using the BDOS.

Side one of the disc runs under CP/M 2.2 and side two runs under CP/M+, or 3.0 if you prefer.

The package contains three parts – ED80 the editor, MON80 the monitor/disassembler, and GEN80 the assembler.

ED80 is based very much on the non-document mode of Wordstar.

Of course if you are not used to Wordstar then you may set up the keys to suit yourself with the installation program and there is a space in the manual next to each occurance of a key explanation for you to write in what you change them to so the manual is still useful to you.

The manual is a useful cross between a tutorial and a reference. Examples are given with commands that may cause problems. An example session with it is shown to correct a version of the Jabberwocky poem and the editor supports everything you would expect.

Block copy, move and delete are supported with undelete to recover mistakes. One very useful option is auto-indent which inserts a TAB after a carriage return to save you justifying your text yourself. DEL will delete it for when you wish to put in a label.

The monitor is very similar to Mona but only works under CP/M. However you can load normal .BIN files from a CP/M disc.

Although the monitor is not really user-relocatable without you altering the loader, it will relocate itself in memory automatically to accommodate any other CP/M programs present, such as GSX.

The normal options are present with the ability to single step and fast step subroutines. The byte search option is fast and you may also search for mnemonics if preceded by a (%), for example %HL, A000.

You may also produce text to work with Gen80. Not only can you jump to a location in memory, you can insert a breakpoint at the same time. J:B800 means "jump to the contents of the PC and continue until you hit the breakpoint at B800".

Gen80 is a macro assembler and will assemble Ascii text. You may do this from a number of discs even on a one drive system and Gen80 will pause to allow you to swap between them.

Unlike AMSDOS, there are no limits under CP/M concerning the swapping of discs with files already open on them, so you are only limited by the size of your symbol table to the amount of code you can generate.

You could in theory fill the whole side of a disc with object code, having included text from several others. Gen80 is very tolerant of the conventions used to express numbers and will accept numbers preceded by a hash (#) such as FFFF or in Intel hex format, 0FFFFh. This also applies to binary numbers.

Gen80 only generates COM files, but there are utilities provided on the disc to turn .COM files into .BIN files and vice-versa.

The file GTOG.COM will convert ordinary Devpac files to Devpac80 files, complete with TABs, which means that you can load just about anything into Devpac via Devpac, which will accept a wide range of text types.

The location counter ($) can be used in all calculations in the same way as Laser Genius.

A nice package, with the advantage that it is the only package to work on the PCW8256/512. Due to Hisoft's constant policy of updating their products, I have been informed of several improvements that will shortly be made and you should contact Hisoft for dates of these.

Features to be added are full symbolic disassembly in Mon80, a full parenthetical calculator function, including using labels as variables in Mon80, a slow run interpreter mode and a T-state counter for fine tuning fast routines.

Editor/Assembler

		Adam	Devpac	Maxam	Zapp	Code Machine	ADM	Laser Genius	Devpac 80	Pyradev
Price	Disc	£29.95	£26.95	£26.95	–	–	–	£19.95	£39.95	£29.95
	Tape	£24.95	£21.95	£19.95	£14.95	£14.95	–	£14.95	–	–
	ROM	–	–	£39.95	–	–	£29.95	–	–	–
Editor type		Line editor	Line editor	Full screen and Basic	Line editor	Line editor	Line editor	Screen with line numbers	Screen (Wordstar compatible)	Screen editor
Method of scrolling		Software	Hardware	Software	Software	Hardware	Software	Hardware	Hardware	Hardware
Modes available		Mode 1	Mode 1/2	Mode 1/2	Mode 1	Mode 1/2	Mode 2	Mode 1/2/0	Mode 2	Mode 2
Print method used		Fast ROM patch	ROM	Fast ROM patch	ROM	ROM	Fast ROM patch	Fast ROM patch	ROM	Fast ROM patch
Block delete		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Block move		No	Yes	Yes	No	No	Yes	Yes	Yes	No
Block copy		Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes
Undelete option		No	No	No	No	No	No	Yes	Yes	Yes
Relocatable editor		Yes	Yes	Tape and disc only	No	Yes	N/A	Yes	No	No
Relocatable monitor		Yes	Yes	Tape and disc	No	Yes	N/A	Yes	Yes	Yes
Label lengths		8	6	250	6	6	250	240	250	75
Max object code size		30k	25k	37k (1 drive) 64k (2 drives)	25k	30k (1 drive) 64k (2 drives)	10k	60k (1 drive) 64k (2 drives)	64k+	25k (1 drive) 64k (2 drives)
Include text from disc or tape		Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Conditional assembly		Yes	Yes	Yes	No	No	No	Yes	Yes	Yes
Text type		Tokenised	Ascii-like	Ascii	Tokenised	Ascii-like	Tokenised	Ascii-like	Ascii	Ascii-like
Macros		No	No	No	No	No	No	Yes	Yes	Yes
Calculation and type		Simple left to right	Simple left to right	Simple left to right	Simple add or subtract	Simple add or subtract	Simple left to right	Full parenthesis significant	Full parenthesis significant	Full parenthesis significant
COM files produced		No	No	No	No	Yes	No	No	Yes	Yes
Number of passes		2	2	2	1	2	2	2	2	2

Monitor

	Adam	Devpac	Maxam	Zapp	Code Machine	ADM	Laser Genius	Devpac 80	Pyradev
Break points	0	8	0	4	1	8	16+	16+	5
Front panel	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Calculator like functions	Yes	No	No	No	No	No	Yes	No	No
Single step	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Step over calls	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes
Produce text from object code	Yes	Yes	No	No	No	No	Yes	Yes	Yes
ROM paging ability	Yes	No	Yes	No	Yes	No	Yes	No	Yes

Assembler comparison table

cp software



AMSTRAD PCW 8256/8512



3-D CLOCK CHESS

NOW AT £15.95

Created in consultation with International Grandmaster and British Chess Champion Jon Speelman.

FAST with unique method of setting levels by time. 'Play against the clock' and 'matching time' modes.
PENETRATING at tournament levels – looks at least seven moves deep.
FRIENDLY – every possible feature. Ideal tutor for beginner and expert alike.

"Superb graphics . . . it really does re-create a match play atmosphere"
— COMPUTING WITH THE AMSTRAD

"Excellent chess program . . . far too good for me . . . will test even stronger players" — AMSTRAD ACTION

BRIDGE PLAYER

£19.95

A challenging and realistic program for all bridge enthusiasts

VERSATILE bidding routines give you a really worthy opponent.
POWERFUL bidding and play to appeal to the most experienced player whilst being an excellent tutor for beginners.
COMPREHENSIVE on-screen displays, keep you informed at all times.

The ultimate refinement in home computer versions of this sophisticated card classic — FEATURES include:
★ Option to specify point count ★ rebid/replay ★ self-play mode ★ move onto next hand

AMSTRAD CPC 464/6128

3-D VOICE CHESS

Cassette . . . £12.95 Disc . . . £15.95
Unique program brings you all the playing power of the original Amstrad Superchess, plus SPEECH and 3-D graphics. Beginners to expert levels with classic helpful features:
★ Analyse mode ★ problem solving ★ large opening library ★ help menu ★ change colours ★ recommended move

DRAUGHTS/ CHECKERS

Cassette . . . £5.95 – also available on disc
Complete with strategic hints, Kings and several challenging levels of play.

BRIDGE PLAYER 3

Cassette . . . £12.95 Disc . . . £15.95
Continuing the tradition of quality, this exceptionally strong bridge player will give even highly skilled players an engrossing game.
FEATURES include bidding in ACOL system with STAYMAN and BLACKWOOD conventions ★ post mortem facility – rebid/ replay ★ bias deal ★ claim rest of tricks ★ restart play of cards ★ input hand/contract

BACKGAMMON

Cassette . . . £5.95 – also available on disc
Dice classic with fast moving graphics – easy to learn but hard to beat!

PINBALL WIZARD

Cassette . . . £5.95 – also available on disc
Colourful, fast-action graphics and sound give this game the feel of a real arcade pinball. Realistic launch, flippers, bumpers, high-score, bonus scores and freeball features.

SUPERCHESS

Cassette . . . £5.95
The original Amstrad chess program – with seven levels of play to challenge you.

MAIL ORDER by cheque, postal order or ACCESS/VISA number (with expiry date). Telephone for instant credit-card orders. Send SAE for catalogue.

DELIVERY is by soonest post. Post free in UK; Europe add 80p per program. All other places add £1 for surface mail or for Airmail add £2 for first program and £1 for each additional.

cp software 15 DESPARD ROAD LONDON N19 5NP
Tel: 01-272 2918 Telex: 57784 MCCL G

With monitor, data
£100 of software yo
(Until mummy catc



With the Amstrad 464 home computer the fun starts as soon as you get it home.

Because unlike many other home computers the 464 comes complete with its own green screen or full colour monitor.

It also comes with a convenient built-in datacorder.

And you get £100 worth of software with games like Harrier Attack and Sultan's Maze. Not to mention Oh Mummy.

64K of RAM means you have plenty of memory to play with. And there are over 200 Amstrad games you can play, many exclusive to Amstrad.





But games are only half the fun on the 464.

The kids can learn spelling and arithmetic with software like Wordhang and Happy Numbers.

Whilst adults will love the way that it helps around the house with budgeting and accounts.

AVAILABLE AT: ALLDERS · BOOTS · CLYDESDALE · COMET · CONNECT · CURRYS · DIXONS · ELECTRIC SUPREME · LASKYS · JOHN LEWIS · JOHN MENZIES · POWER CITY · RUMBELOWS



To help you make the most of your 464, you can join the Amstrad User Club.

And there are lots of books and magazines devoted to it as well.

What's more you can buy joysticks, printers, disc drives, speech synthesisers and light pens to make it even more fun.

But perhaps the most pleasurable thing about the 464 is the price.

The complete home computer costs just £199 with green screen or £299 with colour monitor.

Not much to pay for a chance to get away from mummy.

ULTIMATE · W.H. SMITH · WIGFALLS · AND GOOD INDEPENDENT COMPUTER STORES

Please send me more information.

Name ____________________

Address ____________________

____

ACU 9/86

The Amstrad 464.
The complete home computer.

Amstrad P.O. Box 462, Brentwood, Essex CM14 4EF.

Get into a Spindizzy

Can you solve this fascinating adventure? Peter Green can, so let him guide you through the puzzles and mazes.

Well, it has been out for a few months now – so how far have you got with the amazing Spindizzy? Not far? Although a challenging game, it can definitely be solved, and you don't even need to cheat with infinite time pokes and the like.

I've managed to complete the raw, unhacked version in about one hour and 50 minutes and so will you. You can't do it any quicker because there's a limit on how fast you can move your Geographical, Enviromental, and Reconnaissance Landmapping Device (Gerald) around the screens, nor can you do it much slower because there's only a fixed quantity of time bonus.

If you're having trouble I can offer no magic pokes, being a legal, decent, honest and truthful character *(Hah! – Ed),* but I can pass on a few playing tips and give you an insight into how to tackle the problems systematically.

Stick with it

Spindizzy allows two types of control – joystick or numeric keypad. My recommendation is to stick to the joystick for most of the time unless you're megadexterous. Gerald has to nip round some tricky corners and it's not easy to dodge and swerve at speed using the keypad cluster. Only use the keys in situations requiring very fine, straight line control – I'll give an example later.

Apart from that tip, there's very little I can do to teach readers joystick dexterity. Just keep practicing and you'll find yourself able to throw Gerald into the curves like a good rally driver. Use the brake sparingly as it really eats up the time points if held down too long.

On the subject of time points, bonuses are awarded for two types of action – picking up jewels and entering new screens for the first time. However you are only allowed to accumulate a maximum of 150 seconds, additional gains being wasted, so one of the secrets of success is not to charge about into every available screen but to learn the optimum route to make the most efficient use of the bonuses.

For example, the map splits into four sections to the north, south, east and west of the starting screen, with the easy beginners section to the east. I always visit the harder areas first, leaving the easy screens and jewels near the start as a reserve in case I struggle back to this central crossroads with the time dangerously low.

Another useful technique is to know the best viewing angle for each stage of the journey. Obviously you'll need to change angles when Gerald disappears behind objects but certain other moves, like crossing diagonally-laid stepping stones or climbing slopes, are made much easier when the direction of travel is into the screen instead of across it.

Note that active objects – lifts, jewels and hunters – sharing a screen with Gerald make everything move slower. Certain screens with the maximum of four additional objects make Gerald very sluggish. Watch out for this, and remember that these screens gradually speed up as you collect things.

A sample solution

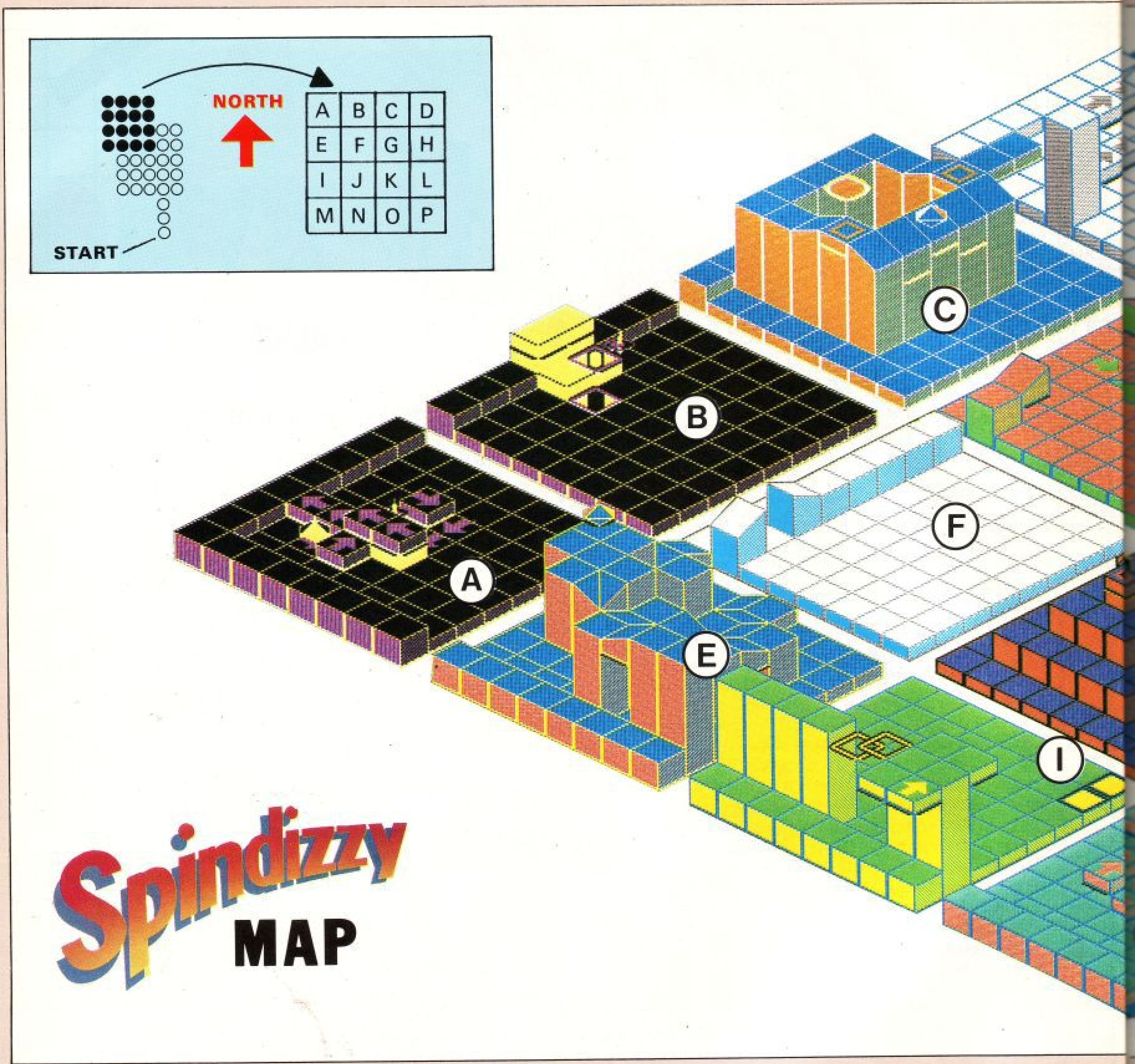
The best help I can give readers is to explain how to solve a sample area of the game. Once you gain an insight into the game's structure, and can control Gerald with ease, the rest of the map shouldn't prove too difficult to complete.

The piece I have chosen is a four by four area north of the start, a self-contained and particularly devious example of the fiendish author Mr Shirley's puzzle-setting talents. The diagrams show the actual section chosen in relation to the start, and the area in detail. The northeast view used (views are labelled as the direction looking into the screen) gives a reasonable idea of all 16 screens, although screen E is probably easier to grasp with a southwest aspect.

Its relatively easy to get here from the start, the main problem that people have mentioned to me being a three-level lift inside a tower. You enter on the top tier and have to exit on the middler tier. If you have trouble getting off at the middle level, the secret is to wait until the lift starts to drop, then push the stick in the required direction together with the accelerate button. Otherwise the lift has dropped below the exit walkway level before Gerald can make it over the edge.

Assuming you can get through this section you'll arrive in screen P high on the ledge by a permanently active lift. Select the northeast view. Get on the lift and, just as it reaches the bottom of its travel, press boost and drop on to the trampoline. If the speed and timing is just right, you'll bounce on to the cube, pick up the jewel and fall off on the ground. This may take some practice!

Now travel O,K,G,C, select the northwest view and line up Gerald tight against the closed castle door (third grid from front edge). This is in line with the gapped ramp in G. Now boost up this ramp – you'll need the run-up to clear the gap. Stop sharply as you reach K – careful reverse boost will do it, or use the brake – avoid falling off the opposite side



of the plateau. Make sure the icon here is activated, collect the jewel and cross the bridge to O. Don't press boost until you're actually on the bridge. The way it drops away means a death-fall if you shoot out over it.

Activate the icon on the O plateau too, collect the jewel and walk down the spiral stairs on the side facing you. Go to L and you'll find the two icons have activated two halves of a ramp. Select the southeast view and climb the ramp. The icon at the top preserves the ramp but also opens the castle door. Come back down carefully, and cross the corner of K to G. Don't accidentally hit H or you'll waste its time bonus.

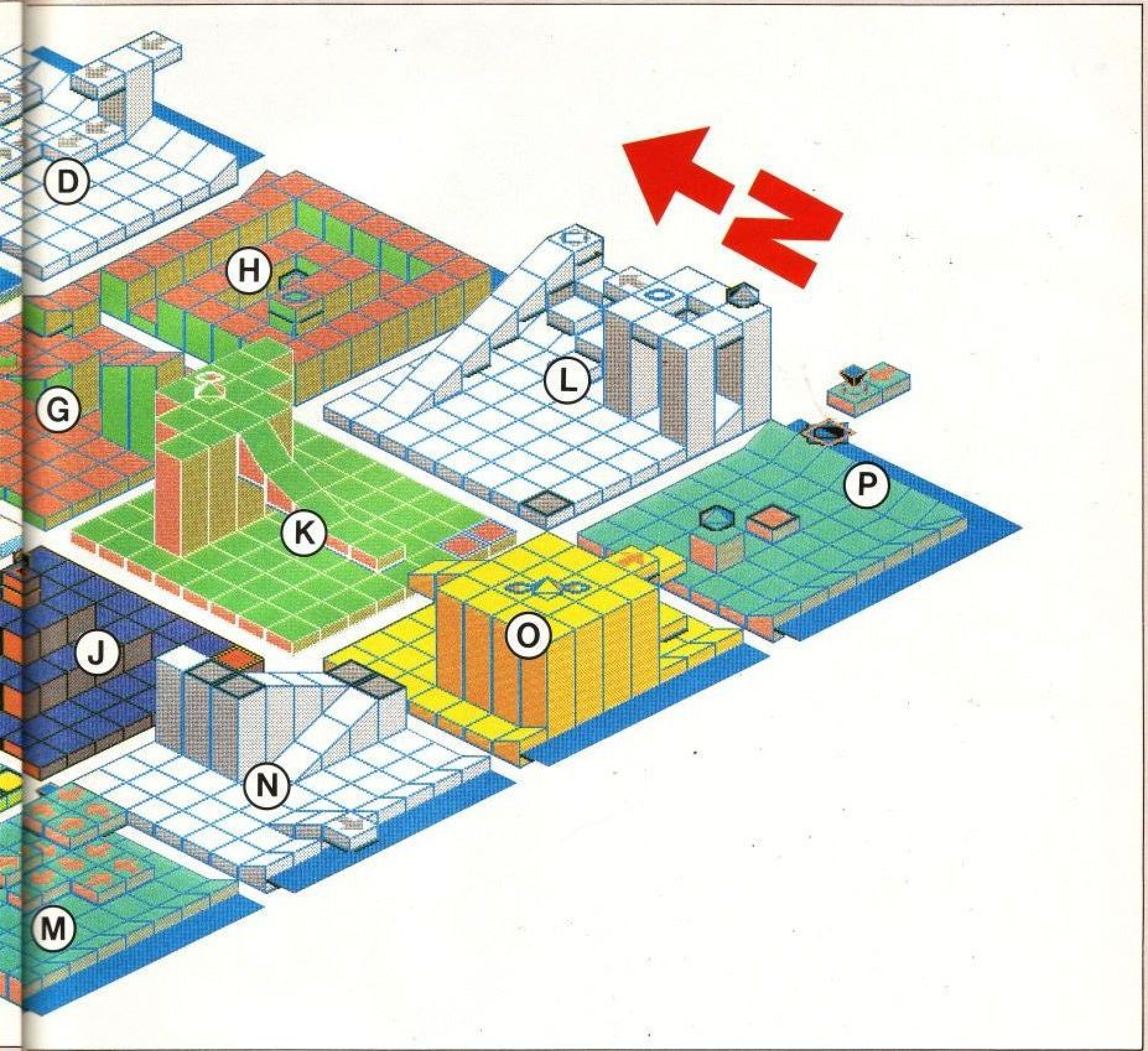
Now go to F, select northwest and run along the south face of the wall – the side away from you – into E.

Here you'll be at the bottom of a twisting ramp. Climb to the fourth landing, then boost up the next ramp section and leap the gap on to the tower with the jewel on it. This is not easy as there's a wedge cut away right where you want to land, but persevere and try not to lose too much time bonus. Collect the jewel and drop down on to the top of the wall which continues into F – easier than going down the ramp.

Now boost along the top of the wall, leaping the gaps in F and G and braking when you reach H.

Go along the top of the spiral wall to the centre and activate the icon. Do not fall off! The wall is not at a fatal height, so instead of losing five seconds and being replaced where you were, you don't die and have to go all the way back to the twisty ramp, which costs you far more. This is a good time to use the keypad and space bar brake instead of the joystick.

When the icon is on, drop off the wall, collect the jewel, come back out of the spiral and go to C. Select the northwest view. The door is open and the lift is working, but you cannot see the bottom of the lift. Line up Gerald on the centre of the doorway and move into the castle on a straight line until he is wedged against the inner wall. The lift should then pick him up. Get on to the ramparts *(Bits of a male sheep? – Ed)* and pick up the jewel on the slope, incidently activating a new icon and disabling the castle activity. Controlling Gerald on a slope is not easy



and I usually lose a life or two here.

Now go from C to D via the arrowed ledge and get back to ground level by leaping from ledge to ledge, following the arrows (use boost). Go C,G,F,E, select southwest, and climb the twisty ramp again, this time all the way to the top and into screen I. Select southeast cross the oscillating lifts on to the platform, nudge Gerald as close as possible to the near edge of the arrowed square, then boost in the direction of the arrow.

The idea is to bounce right across to the top of the tower in L, and you need to hold boost and direction during the whole process in order to accelerate – even on the trampolines – otherwise you won't make it.

Pick up the jewel in L, activate the icon and descend the spiral staircase. Go P,O,N to the foot of the double ramp in N, select northwest and climb the ramp. The trampolines at each turn make this particularly difficult and frustrating but it can be done. The currently active icons will complete a bridge across to the centre of the pyramid in J, which disappears when you activate the icon at the pyramid's peak. Carefully collect the jewel on the way down – miss it and you won't have time to run this whole sequence again.

Now you can visit M and A to collect the jewels and then go to B. The lifts over the ice will be working, the catch being that they're slightly out of phase. Get on the bottom left as soon as possible after entering the screen. The second time the bottom lift rises, it is briefly at the same level as the upper lift. Cross over carefully. Remember ice is frictionless, so it's easy to lose control here. Hopefully you've timed it right and can steady yourself as the upper lift rises, until you can run off the lift, over the ice and into the next screen, thus completing this section. If you miss the opportunity, it's quicker to leave and re-enter screen B rather than wait for the lifts to drift back into phase.

A teaser

If you thought that was bad, there are worse areas elsewhere! As a final puzzle for you, have you found the three hidden messages spelt out in the scenery?

ACU

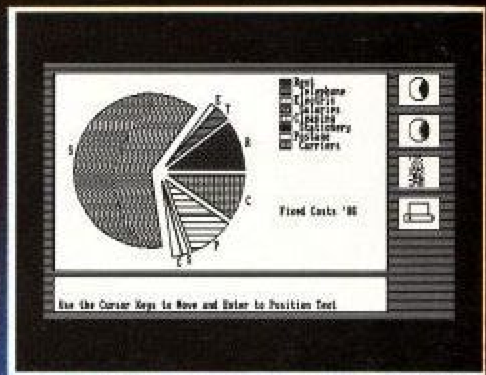
t ONE package!





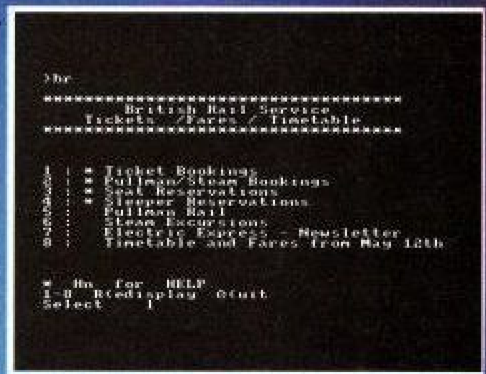
SPREADSHEET

Prepare budgets or tables, total columns or rows with ease, copy formulae absolutely or relatively, view in either 40 or 80 column modes, recalculate automatically – and more!



GRAPHICS

Enter data directly or load data from the spreadsheet, produce pie charts, display bar charts side by side or stacked, overlay line graphs – and more!



COMMS MODULE

Using a modem you can access services such as MicroLink and book rail or theatre tickets, send electronic mail, telex and telemessages in a flash – and more!

e that can't be matched!

DATABASE SOFTWARE

Amstrad CPC 464, 664, 6128

Cassette *£14.95*
3" disc *£19.95*

Database Software,
FREEPOST,
Europa House,
68 Chester Road,
Hazel Grove,
Stockport SK7 5NY.

Order at any time of the day or night

Telephone Orders:	Orders by Prestel:	MicroLink/Telecom Gold
061-429 7931	**Key *89, then 614568383**	**72:MAG001**

Don't forget to give your name, address and credit card number

ENQUIRIES ONLY: 061-480 0171 9am-5pm

*Please send me **Mini Office II***

*Add £2 for Europe
*Add £5 for Overseas

Cassette £14.95* .... *8120* ☐
3" disc £19.95* .... *8121* ☐

Payment: please indicate method (✓)

Expiry date /

☐ Access/Mastercharge/Eurocard/Barclaycard/Visa

Card No. ____ ____ ____ ____

☐ Cheque/PO made payable to Database Publications Ltd.

Name ______________ Signed ______________

Address ______________

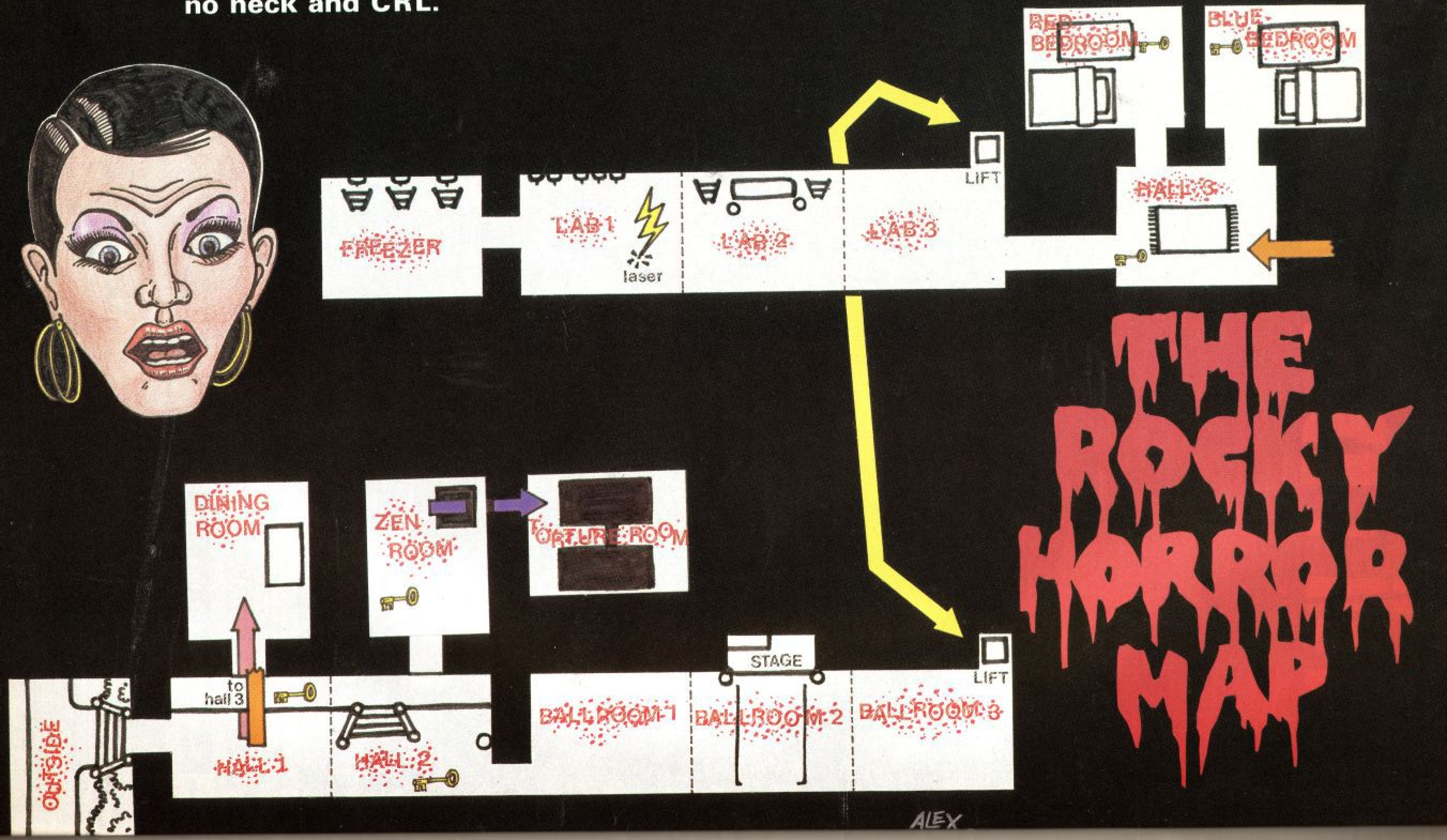
______________ Tel: ______________

Please allow 28 days for delivery

ACU9

THE ROCKY HORROR MAP

Here's help for those stuck in a time warp – a map of the spooky Rocky Horror House. Thanks to the man with no neck and CRL.



KNIGHT TYME



Twang, whoosh, aaaaggh! Clunk, bonk, crash, tinkle tinkle. Hark, is that the sound of a knight being catapulted through time? If, like me, you missed Spellbound, a previous Mastertronic game, you'll be wondering who Gimbal the Wizard is, why he suffered from a self inflicted White Out Spell and how releasing him from it caused a character called Magic Knight to be catapulted through time. If you have played Spellbound you probably understand every word of this and are currently jumping up and down with glee in W.H. Smiths.

Let's get this straight so that there's no misunderstanding. A medieval knight with magical powers is catapulted through time into the future. He lands, with a bump and a crash on the starship USS Pisces. There he is met by a cute little droid by the name of Klink who says: "Hi! I've been expecting you. Here take this." And gives him a data cube that provides all the relevant information for the 25th Century, thereby preventing him from becoming culture shocked.

The game uses a system called Windimation, which sounds rather unpleasant but actually means window animation. This is a menu system where pressing the fire button on the joystick brings up a multicoloured list of options. You select the required command using up and down on the joystick or the relevant keys on the keyboard. The options that you have, allow you to pick up and drop objects, manipulate them in various ways and do various other things in the game.

When not selecting from the menus, the joystick moves Magic Knight left and right and allows him to jump. Exploring the ship, MK starts in the transporter room, be careful with this as it doesn't seem to work.

These characters are friendly, although sometimes uncooperative. You may give them objects and take them away, but sometimes they won't be willing to accept them or part with them. You may also command your friends, with varying degrees of success, to sleep, wake or help.

MK has a number of spells which can be used at different times to fortify his own strength or fortify other characters. This helps keep them awake and MK alive, as running out of strength is a fatal event. The first problem is how to get all the crew members to accept your commands. By careful examination of all the objects you can find around the ship, plus the objects that you can snatch away from the crew and by getting all the available help you can, you should be able to sort it out.

It is useful to know that you can wear some objects and read others. Other objects have more direct uses and some seem to be complete red herrings. Once solved, the next problem is to move the ship and get off it to find the Tyme Guardians who can help MK return to his own time.

Author: Mastertronic
Price: £2.99

Nigel

Initially I was unimpressed with Knight Tyme, as it seemed slow and full of unnecessary menus. Now I know that the menus are for concealing the puzzles in.

Watch out for the unexpected additional option, the easily overlooked extra item in the list which looks unexciting or not useful. This is where you find the answers to a witty and absorbing adventure game.

As a hybrid of the old text adventure game, there's a lot of the feel of a text adventure in it. However Knight Tyme has very good graphics, smoothly animated in places. There are some very amusing bits which I won't spoil for you because I recommend you buy it. At Mastertronics' price the game is excellent value for money.

18/20

Liz

Spellbound was one of the games which proved that budget and crud are not necessarly synonymous. The follow up is every bit as good, it has its own humour and the new setting breathes life into what could easily have become a tired plot. You don't have to have played Spellbound but it helps.

Some of the logic is so clever it is funny – of course no one can hear you talk when you don the gas mask. The glue is sticky, so you can't put it down. The music is very good but starts to drone after a while, the Mode 1 graphics precise yet cute. A very enjoyable game.

18/20

Colin

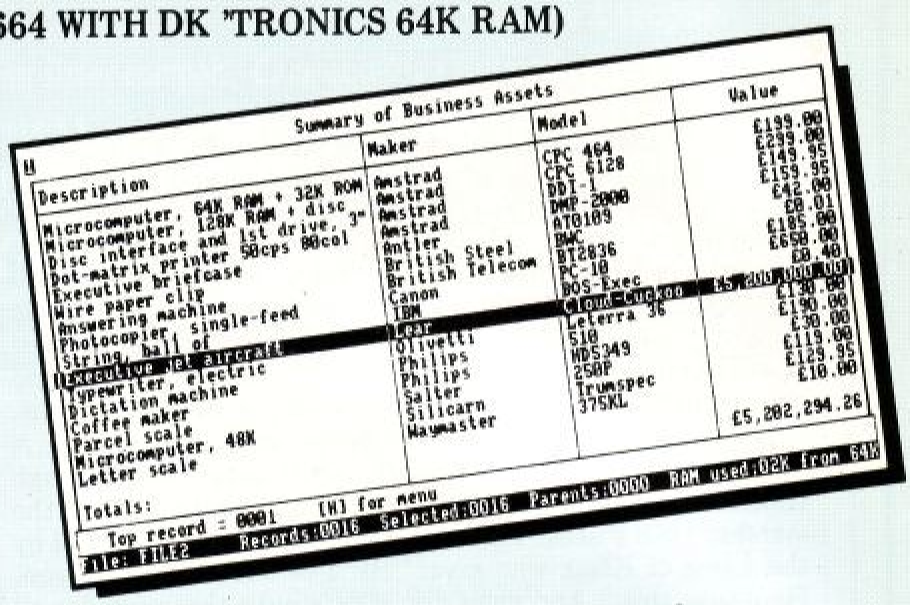
The more cosmopolitan among you will have heard of a computer called the Spectrum 128, and Knight Tyme hails from that somewhat deserted machine.

If you think that it's slightly fishy that a knight in shining armour should be hurtling through deep space then you'll be intrigued by the perverse logic that permeates this wonderful whimsy. And if you enjoy a puzzle, appreciate a little humour and can spot all the references hidden in this well written, menu driven, smooth-as-silk game (the Tower fish has a noble history) then get this one. It will be money well spent. But why is there a pot plant in the air lock?

18/20

MASTERFILE III

FOR THE AMSTRAD CPC 6128 (ALSO CPC 464/664 WITH DK 'TRONICS 64K RAM)



RATHER ENHANCED ...

We are pleased to announce the third major issue of MASTERFILE. This is no mere update, but a thoroughly enhanced and streamlined re-design of MASTERFILE 128, packed with new features, and a delight to use. We included some of the best ideas which our earlier MASTERFILE customers contributed. We sent prototypes out to our eager "test" users, and they kicked it as hard as they could, and came up with even more ideas. We spent several weeks further honing MASTERFILE III. Then we sat down and totally rewrote the manual.

SOMEWHAT POWERFUL ...

For the benefit of newcomers to the CPC machines, MASTERFILE III is a very powerful and flexible data filing and retrieval system. All "database" systems require that your data is organised into fields and records. But unlike most, MASTERFILE does not commit you to field lengths or formats, since ALL data is variable-length and optional. Files are not pre-formatted, and only used bytes are saved to disc. Also, unlike the rest, MASTERFILE allows multiple user-defined ways of viewing/printing your data. And unique in its price range, MASTERFILE offers RELATIONAL FILE options, whereby common data can be entered just once and shared by many records. Maximum field size is 240, maximum fields per record is over 50, and maximum file size is 64K. Room for 1,000 full names and addresses, for example. Only one disc drive is required. It is menu-driven throughout, and comes with detailed illustrated manual, and example files.

EVER SO FAST ...

Just about **Any** kind of information can be handled by MASTERFILE. You can **Export** the data to other systems (e.g. PROTEXT/MERGE and TASWORD). You can even merge your own USER BASIC to MASTERFILE for customised file processing. You can build new files from other sources — e.g. transfer data from Spectrum MASTERFILE. The speed of **Search** of MASTERFILE is second to none. We even get calls from customers who say that "The search did nothing"; they simply blinked and missed the revised status saying how many records had been found! Records can be sorted ascending/descending, character or signed numeric, even embedded keys such as surnames. We simply don't have room to list all the features; give us a call if you are still in doubt of the power of MASTERFILE III.

PLEASINGLY PRICED ...

How much does it cost? Just £39.95. Our test customers all say this is far too low — but then we didn't charge them this! However, we appreciate that many of you are "home" users who do not want to pay a "business" price. So we kept to a realistic figure. But don't be fooled by the low price. This is no toy written in **Basic**, nor is it a lumbering CP/M dinosaur. This is real machine-coded computing power. We have had IBM and Apricot users beg us for a MASTERFILE for their machines — when they had seen the earlier CPC MASTERFILE. They are going to be more frustrated now. So are the PCW plodders. Alas, many of you pay a lot more, because you buy one database after another before you throw them all out for MASTERFILE. The trick is to ask around, read the reviews and choose MASTERFILE III first time. Try telephoning our competitors and ask to speak to the programmer for technical information. Then try us. We think you will spot the difference!

For those of you who already have an earlier MASTERFILE, we tempt you with some of the extras that "III" has:

Three Times faster disc load/save than MASTERFILE 128/II. **Twice** the screen speed. Total +/— values. Merge all/selected. Save all/selected. Disc file erase options. Implicit record numbering, both physical and selected. GOTO selected record number. Simpler but more powerful search. Full data name prompting. Print report width up to 160 columns. Page numbering. Insert records anywhere. **Record Cursor** for direct update within a display page. Smart new text editor. Format printing. Extended User **Basic** options. Compatible with all earlier CPC MASTERFILE files. **Field-to-Field Calculations.**

MASTERFILE III complete costs £39.95. We can provide an UPDATE onto your original MASTERFILE 464/128/II disc for £19.95 — inclusive of the new revised manual. If your original MASTERFILE 464 is on tape, we ask £22.95 for the exchange.

We also have one of the fastest and friendliest spread-sheet programs around, MASTERCALC 128. For this we ask £33.00. But as a SPECIAL OFFER to customers who buy MASTERFILE III complete and MASTERCALC 128 together, we offer the spread-sheet at £10 OFF, just £23. (£62.95 in total for both programs.)

All prices include VAT and P&P to anywhere in Europe. Outside Europe please add 20% for air-mail service. ACCESS/VISA/MASTERCARD welcome, written or telephoned. Please quote your card expiry date if ordering via credit card. If paying by cheque, make out to **"Campbell Systems"**.

Our normal response is return of post, 1st class.

CAMPBELL SYSTEMS, 57 Trap's Hill, Loughton, Essex, IG10 1TD, England. Tel: 01-508 5058

COMPLETE PRESTEL LINK

ONLY £35.99



FOR YOUR AMSTRAD

Enter the world of data communication with the Cirkit Prestel Link.

A complete package for the CPC464, 664 and 6128 computers consisting of Modem, Interface and Software for only **£35.99**

The software supports full Prestel features including dynamic frames and up to 16 colours.

Terminal mode allows access to BT Gold, bulletin boards etc.

Extensive documentation of the RSX software is supplied to enable the RS232 compatible interface to be used with your own programs.

The acoustically coupled Modem is very reliable with baud rates at 1200/75 and 1200/1200 half duplex and has full BT approval.

Prestel Link Pack
£35.99 (Software on Tape)
£43.99 (Software on Disc)

Telesoftware Downloading At last we have the long awaited enhanced software package. This has been a long time coming but the wait has been worthwhile, it provides not only telesoftware downloading facility and text dump, but many other improvements such as off-line editing of Prestel frames, user-defined function keys, the option to configure for other modem and, in terminal mode, true ASCII or XMODEM file transfer, plus compatibility to spool text to disc. Available on tape or disc.

On Tape £14.95 **On Disc £19.95** PRICES inc VAT and P&P

VISA

Cirkit Distribution Ltd.
Park Lane, Broxbourne, Herts EN10 7NQ.
Telephone (0992) 444111 Telex 22478

Access

HSV COMPUTER SERVICES LIMITED

COMPUTER SUPPLIES AT LOW LOW PRICES!

CONTINUOUS STATIONERY	QTY 250	500	1,000	2,000
9.5″ × 11″ 60 GSM MICRO-PERF ALL EDGES	£2.95	£4.95	£8.95	£14.95
TRUE A4 90 GSM MICRO-PERF ALL EDGES	5.25	8.75	14.95	—
LABELS 3.5″ × 1.5″ (1 across)	—	2.95	4.95	9.50
LABELS 4.0″ × 1.5″ (1 across)	—	3.25	5.50	10.50
LABELS 4.0″ × 1.5″ (2 across)	—	3.75	6.50	11.95
LABELS 2.75″ × 1.5″ (3 across)	—	2.75	4.50	8.50

PRINTER RIBBONS	Each		Each
AMSTRAD 8512/8256	£5.50	OKI MICROLINE 80/82/83	£1.75
AMSTRAD DMP2000	4.75	PANASONIC KXP1090, 91, 92	4.75
CANON PW1080/1186	3.25	SEIKOSHA GP80	2.75
EPSON FX/LX/MX/RX80	3.25	SHINWA CP80	4.75
JUKI 6100 S/S	1.75	STAR SG10/SG15	1.75
JUKI 6100 M/S	2.75	TAXAN KAGA	3.25
MANNESMANN TALLY MT80/80+	4.75	WALTERS WM80	4.75

DISKS AMSOFT
3″ CF2 . . . 1-4 £3.95, 5-9 £3.85, 10 £3.75 each

DISK STORAGE BOXES	Price Each
HINGED LID – Holds 24 (uncased), 12 (cased)	5.95
HINGED LID LOCKABLE – Holds 30 (uncased)	9.95

ALL OUR PRICES INCLUDE CARRIAGE & VAT – NO EXTRAS TO PAY!

HSV COMPUTER SERVICES LIMITED, 40-42 New Market Square, Basingstoke, Hants RG21 1HS (0256) 463507

HSV

CORE

Have you noticed what a shocking state the universe is in? Always having to be saved, planets exploding, aliens invading. The latest in this long line of galactic disaster games is Core (Cybernetic Organism Regeneration Expedition) which has been released by A'n'F, layers of Chuckie Egg.

The setting for the game is asteroid Eroc I (or is that Eric 0?). This asteroid contained a mining complex before it was wiped out by unknown alien forces. (Don't worry Sainsbury's sell stuff to kill unknown alien forces – dead!). You must guide Commander Andrew Angello through the complex in search of the missing segments of the asteroid's biomemory unit which has complete records of what really took place on Eroc I. I guess you might say the Erocians had the place bugged.

The action starts with Andrew transporting into the cavern complex where he must begin to explore. The mines are shown from the side with Andy able to walk left and right, and bend down to touch his toes. At intervals there are doors around the place where Andy can go to a different corridor. An arrow down indicates a doorway on the other side of the corridor. Transporters provide access to other parts of the complex. Possible directions that can be taken from the current area are shown in a display at the top of the screen with dangerous choices flashing menacingly.

As Andy wanders round there are batteries to pick up which can be used to replenish energy. Energy is lost by movement and being damaged by the various inhabitants of the mines. These include the other sort of mine, clouds which shoot lightning bolts, and clusters of stars. There are other nasty things out to do him in such as a tractor radiator on legs. These kill Andy outright if they touch him.

As well as batteries there are other objects such as spades and pieces of paper. These can be picked up, dropped and selected from an icon menu activated by the joystick. The objects can be used to complete the puzzles presented in the game. For example, the spade can be used to dig something out of the ground.



Activating the selection menu and using the objects is vital to complete the game, but unfortunately it is also one of the most disappointing aspects. Operating it is very tricky and takes a while to get the hang of.

There are several options on the selection menu. You can save or load a previous game, provided you have found the cassette hidden in the complex. There is a pause mode. And there is a help mode which allows you to ask for aid from the computer.

Author: A 'n' F Software
Price: Tape £9.95, Disc T.B.A.

Nigel

Core is a cross between Marsport and games likes Equinox and Starquake. You need a map to find your way round and then some patience to complete the tasks. The daft system for dropping and picking up objects makes the game impossible to play.

If you suddenly encounter the walking Art Deco fridge, by the time you've deselected the spade and got out your laser, you're dead! A'n'F should chuck that bit away and come up with a proper scheme, 'cos the rest of the game is quite acceptable.

9/20

Liz

Not exactly hard-core stuff, this. It looks so much like a Spectrum conversion that the keys almost feel like they were built on a foundation of custard. I don't like the screen either – it's one of those miniscule Spectrum jobs. The Arnold screen wasn't made big so that people could shrink it. The loader – Spectrum style – works. This makes a pleasant change from some loaders I could mention.

Playability is not a great feature here – maybe they ought to have a different way of using objects. The baddies are almost impossible to dodge, especially thunderclouds. Many times did a bolt from the blue evoke the "That smarts" message. Quaint.

Not bad, methinks, for a Spectrum game. If they used the Arnold as an Arnold, it would have been better.

11/20

Colin

Yet another multi screen drive round and pick up the right objects game set in space. The idea isn't new so what does this particular game have to lift it above the competition? Having given it a bit of thought, I can't actually think of anything.

The lack of colour and reduced screen size don't let you forget the fact that this game obviously first saw life on a different computer so that it has been unable to make full use of the area and colours available. The system used to control the picking up, dropping and use of objects is just so confusing as to be virtually useless. Also the fact that it is very difficult to avoid the floating baddies doesn't exactly help one's enjoyment of the game. Not impressed.

10/20

KANE



Cliff grimaced as the hot desert wind scoured his face. He'd gone for the job of sheriff before he knew of the brave but deadly Sioux, before he knew of their sworn hatred of white men, before he knew of their hatred for him. But now he stood alone in the awe-inspiring scenery, a bow from those same Sioux in his hand. He waited. "Show yourself to be a man with a man's weapon", the chief had said, "and we will make peace. Fail, and you will die". So he waited, ready to shoot the white birds; birds which the Indians would exchange for tokens of peace. The more he killed, the more tokens he would get, and the longer he would live in this heat-sodden hell.

He wiped the sweat from his eyes, and squinted into the searing sun. There! The first flock flew past, flapping in the distant sky. And were gone. All except two, which his arrows had plucked from the ancient sky and laid to rest on the baked earth. Cliff reached for another arrow. Soon there were no more arrows, and no more birds except those that were to be exchanged for the precious tokens.

The tribe were impressed by this white man's prowess, but Cliff had no time to accept their praise. He had to cross the desert to Kane, where the train was shortly to leave for Sinclair's Folly. Skillfully he guided Crowbag, his horse, over the blunt cacti and dry, dead bushes that littered the dusty plain, mute memorials to the rains of a year ago. But Crowbag was a bad-tempered beast, and unforgiving of errors. One mis-timed jump, and Cliff could expect to follow those birds through the air to the hard, hard ground.

He rode on. The sign to Kane appeared, and Cliff heaved a sigh of relief. Then rolled on the ground, as a .45 slug whistled past his ear. Guy Kewney and his banditos, the dreaded Eighty-Oners, were back in town! Swiftly, Cliff assessed the situation. His six-shooter was full, but Kewney had 11 other honchos gunning for him. Across the street was the gunsmith, but the dusty road would grant him no cover from the lead-born death that waited for him in Guy's guns.

A bullet sung its song of death as it kicked sand in his face. He had no choice. He sprinted across the road, squeezing off shots at the white faces of the gang as they hid in doorways, on roofs, behind the trough. The Colt spat its last defiant breath as he reached the gunshop and refilled. The next few minutes were lost in noise and blood, but then there was only Cliff and 12 sad ex-Eighty-Oners. He had no time to reflect on the battle, as the scream of the train whistle in the distance reminded him of his destiny.

He jumped on Crowbag, and spurred him into action. They were soon level with the train, but the bushes by the side of the track were thicker, and his horse was hard pushed. Slowly they gained on the locomotive. The driver glanced in their direction as they pulled ahead, saw the star on Cliff's lapel, and the brakes went on. As Cliff dismounted from Crowbag, who's steaming flanks and bulging eyes bore witness to the effort, he knew with a grim satisfaction that he had survived. He had won.

Author: Mastertronic
Price: £1.99

Nigel

Ye Har! Root'n toot'n fun in the Wild West. Kane is a real neat little budget showdown that comes from the Mastertronic stable. The game is broken into four stages (Wells Fargo, of course), shoot the birds, jump the cacti, gunfight in Kane, and Network Wild West.

The game has nice big sprites, well animated. For me, the horse is the real star of the game as it has the best animation of all. Mastertronic should be congratulated for truely breaking the mould of the British software market by producing a quality product at a budget price.

19/20

Liz

Mastertronic are prolific, their games arrive in the office in twos and threes (for protection?). When Kane turned up the other titles were ignored in its favour. A new programming technique seems to be showing its face, the chunky sprite. First there was Heavy on the Magik, then there was Graham Gooch's Test Cricket and now Kane.

They all feature large but chunky sprites which are very well animated. The smooth gallop of the horse in Kane shows how well this can work. Hickstead was never like this. For £1.99 you can not go far wrong. I would say that the biggest mistake is the price – it should be a MAD game at £2.99.

19/20

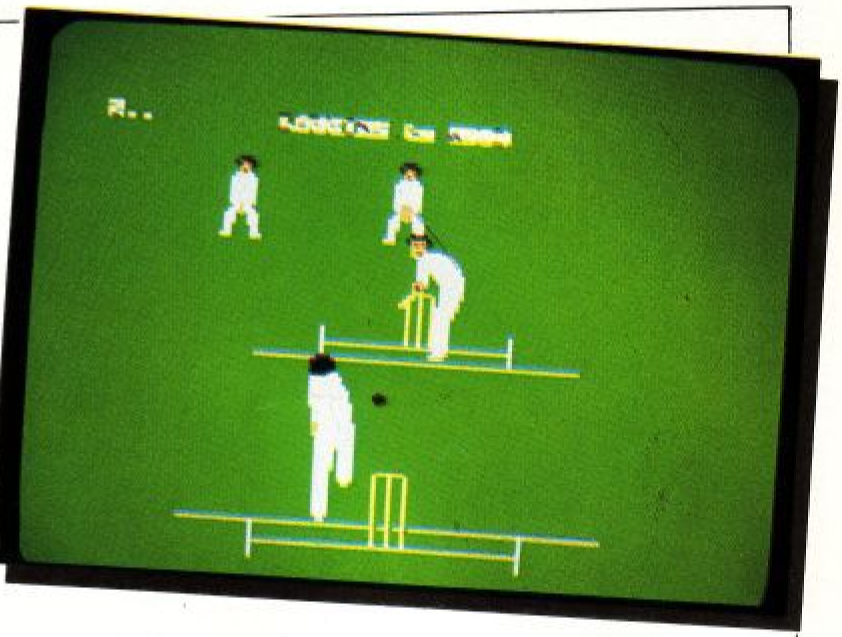
Colin

Back in the wild and woolly days of the West men were real men, Spectrums were real computers and budget games were really rough. But then Mastertronic rode into town, and the cowboys never knew what hit them. Kane leaves others in a cloud of dust. Four parts – shoot the birds, cross-country ride, shoot the bandits and catch the train. Each one produced to a high graphical standard, and each one eminently playable.

Sure there are faults – some of the birds seem to be immune to arrows – but the sound track, the practice options and the swish animation combine to offer any hombre a humdinger of a game for his hard-earned dollars. Recommended.

17/20

GRAHAM GOOCH'S TEST CRICKET



There can't really be much to beat a good international cricket match. The sound of leather on willow, the comfort of a deck chair in the sun and a beer tent that is open all day – pure luxury. So how does this make a transition to your trusty computer? Well, like all team sports simulations it is difficult to allow just one controlling player to take on the tasks usually handled by a full team. The two alternatives are to give the opportunity to pick an overall strategy and then let the minions get on with it or to give complete control over just one or two players at the centre of the action. It is the second of these two alternatives that is used here.

It is possible to play either a full two innings test match or a cut down limited over game. Having made the choice you are then presented with a list of potential players from whom you must pick your squad. It wasn't very clear how much effect your selections were going to have on the final outcome but it seems like a good idea to pick Botham at least, seeing as he is the only world class player England really have – when he isn't being banned for some minor indiscretion or other.

The game provides two game types that are chosen at the very start, either simulation or arcade. In the first the joystick is used to influence how attacking the bowling/batting should be. In the arcade version you actually control the timing of the batting strokes or the speed and timing of the bowling. The speed is determined in true Daley Thomson's Joystick Destroyer style according to how fast you move the joystick from side to side. I guess most cricket fans will go for the more sedate simulation mode.

In play the view is sort of 3D looking up the pitch with the bowler closest to you and the batsman ready to receive at the other end of the wicket. The wicket keeper and slip fielder are also shown in the view but the rest of the fielding side are obviously hidden away behind the screens.

A count at the top of the screen shows how many runs have been made in the current over and at the end of an over the current batting sides figures are shown along with the fall of wickets. After a short delay the bowler's figures are shown and you then have the opportunity to change the bowler. It is a good idea to do this every now and again so that a bowler doesn't become too tired. In limited over cricket each bowler has an over limit as one would expect.

Author: Audiogenic
Price: Tape £8.95, Disc £14.95. PCW version available

Nigel

How can a cassette offer the attractions of test cricket? It is impossible to capture the atmosphere of a match in a little box. Audiogenic have done a better job than I would have guessed possible but it is more like watching than playing in a game.

Your control over the actions are limited, even in arcade mode. There is plenty of scope for improving the game. Another view of the wicket after the ball has left the bowler's hand, a decathalon, joystick-waving effort to simulate running and free sandwiches (with the crusts cut off) would all have helped.

Still you can't do worse than England this season.

14/20

Liz

Only the English could be so enthusiastic about a game as contrived as cricket. A "proper" game lasts three days, giving the weather more victories than most teams. Still the more you follow the game the more addictive it becomes.

The Audiogenic simulation is accurate in that respect, it is addictive, and I found myself wishing I knew more about the real game. Who should go in as a wicket keeper? Who makes a good slip?

The production is reasonably good, at first I thought that the display used mode 0 but looking again it proved to be Mode 1 made to look chunky. I normally prefer Mode 1, but given the Amstrad has five shades of green it may have been better to opt for lower resolution and use more colours.

For a non-cricket fan this is an interesting, playable game. If you know about and enjoy cricket it is a must.

17/20

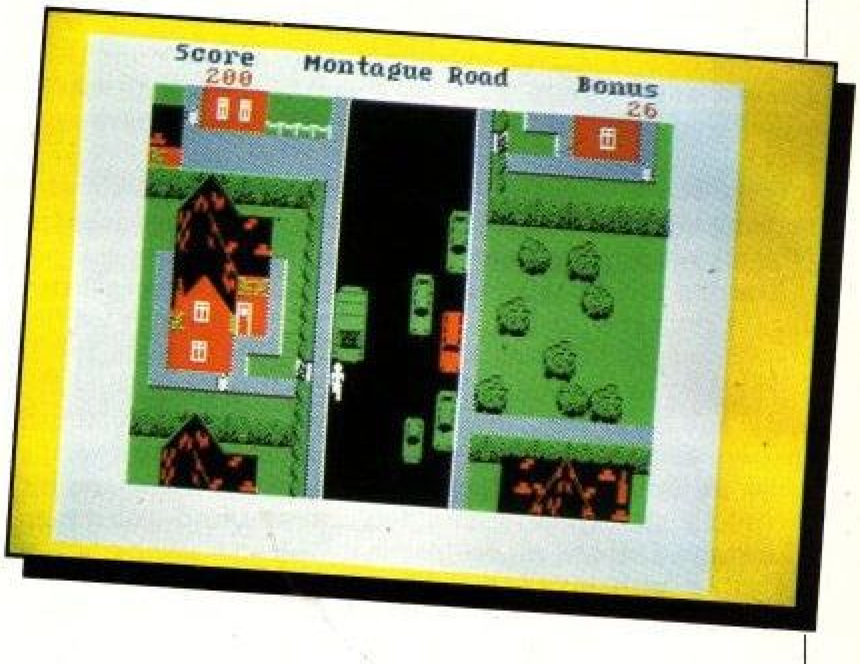
Colin

Simulations are always a bit of a let down, there's nothing to compare with the real thing.

But as far as they go this is probably about as good as you are going to get for cricket. The Graham Gooch tie-in is all very well but I'm not sure that it is really going to have that much effect on how well it sells. If the game is considered purely on its merits as just that – a game – then it is quite good. At first it seemed a bit dull but it's the sort of thing that creeps up on you until you find yourself trying to bowl out the other side even though you've got other more pressing things to do.

"Just another five minutes and then I'll give up", turns into a game that lasts a couple of hours.

15/20



TRASHMAN

'Ere, yer mightn't think its much of a job, being a dustman in Virgin-on-the-Ridiclus, but it 'as its moments. Joe, well, 'e drives the dustcart, but 'e's never awake, know wot I mean? 'E leaves it in one place, yer have to walk bleedin' miles to get there, reading 'is Sun ('e reckons 'es in love with that Sam Fox. Plays strip poker with 'er on 'is Spectrum).

'E sits behind that wheel, staring into space (or the Sun, there aint that much difference) until yer've just got a bin ready, and then 'e wakes up and moves the bleedin' thing half a mile up the road. Looses yer hours on the clock, and we're all paid by time these days. Makes yer sick. And then there's them dogs. Vicious things, dogs. They bounce around yer ankles like I don't know wot, an' if yer try an' take a short-cut over the lawn or somewhere then wham! I've got that many teethmarks, they wanted me as an extra in Jaws.

So yer get bitten by one of the dogs, and yer limp. Stands to reason, really. And if yer limp, it slows yer down worse than walking through wet concrete, and there goes yer bonus. Joe had a nasty accident with wet concrete just the other day. He was reading Page Three, well, more like looking at it really, and he fell flat on 'is face into a fresh lot of pavement. 'E was lying there for 'alf an 'our, 'is fissog only inches away from Sam Fox. Never seen a man so 'appy . . .

But if the dogs don't knobble yer kneecaps, then those young tearaways on those BMXs run straight into yer. Dangerous, thats wot I call it, downright dangerous. Get one of those run over yer, and yer talking minutes off yer time, and pounds off yer pay. Still, there's always those little jobs that the folks in the 'ouses want yer to do. Useful, the extra cash, and it's all real money. Wot the taxman don't know about won't 'urt me, thats wot I say. On our route, there's always the cafe, and if we're on an evening run, the Rod and Whippet. Makes the round that bit nicer, don't yer think.

Joe, well 'e doesn't think. Get 'im in the pub, and four pints of heavy later it's Sam this, Sam that, and 'es useless for the rest of the round. I soon found out that too much of Vera's fried bread or Old Peculiar knocks yer fer six, and there goes yer bonus. The bosses ain't so bad, mind. Yer mess it up once and they give yer a second chance. Mess that up, and yer on yer second public, know wot I mean?

Third time yer don't get the job done, and yer out on yer ear. Some of us don't make it that far, the traffic's that bad. Fred, nah, you wouldn't know Fred, 'e got hit by some editor of some computer paper, in 'is flash little red Jap sports car. 'Ere, is that the time? I gotta go. Five bins, Montague Road... JOE! Get yer nose out from between that young lass and start the motor. I dunno...

Author: New Generation/Virgin
Price: £8.95

Nigel

No, Trashman isn't slang for a word processor company. It's the latest from New Generation, now in the Virgin stable. Appropriate really, what with Richard 'Rich' Branson cleaning up for Maggie when he's not detoxifying pop stars or playing in his Batboat. But I hope he makes a better job of it than New Generation.

The game is sluggish, the sprites are trite, the graphics sub-Spectrum, and the overall effect is, er, rubbish. After half an hour's industrious gamesplaying, the feeling was one of frustration, somewhat tempered by a complete lack of interest in the game.The stated aim, that of emptying five bins, seemed impossible, not because the puzzles (hah!) were fiendish but because the design and layout was so bad. This will do Virgin's – until now – enviable Amstrad reputation no good at all. But, to be fair, the game is an effective simulation of a dustbin.

7/20

Liz

Trashman was a hit on the Spectrum two years ago. Looking at it today shows how much games have progressed over that period. Six months ago it would have been a typical budget game, in August 1986 it looks like the kind of thing you find on a compilation. Trashman is mildly absorbing but is not really fun. Perhaps it would make an interesting introduction to computer games, but then that is just being charitable.

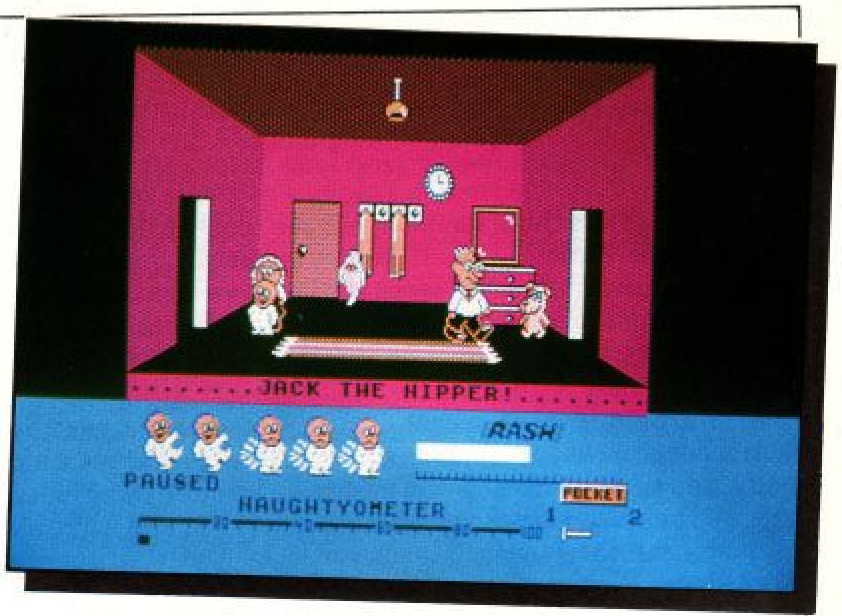
5/20

Colin

Computer games give you the chance to escape into a fantasy world, and if your choice of fantasy is to be a dustman now it can be done. The simulation is not complete, there is no option to scatter litter all over the owner's garden and you don't have the interesting bit of looking through other people's rubbish. The road makes Trashman a bit like a sideways on Frogger but somehow without its appeal.

4/20

JACK THE NIPPER



As those readers of more advanced years may well know, there comes a stage in every brat's life – usually the first 10 years – when the greatest fun imaginable is to cause trouble, strife and general mayhem. (The next 10 years are similar, but usually involve sex at some point). Gremlin Graphics, who are presumably not too keen on the latter, have produced Jack the Nipper, just for those who thrill to be three.

Starring role in this rattling game is the aforementioned Jack, a romper-suited child of indeterminate age who toddles about town with mischief in mind. Various implements of destruction lie scattered in time-honoured fashion about the place, and the skill lies in removing these to the areas in which they can do most damage. Pitted against the lad in this worthy cause are various adults (or wimps as the sleeve notes have it), including shopkeepers, siblings, parents and policemen (Constable Dribble, no doubt).

Contact with any of these brings on a spate of nappy rash (there's always a sting in the tail), and this ultimately leads to the cute one's demise. Unlike the real thing, however, there appears little which otherwise endangers the precocious infantile anarchist, so maximum effort can be expended in pursuit of the practical joke.

Access to the desired objects with which to do the damage is generally difficult, involving leaping about on shelves, work tops and walls (owners of real live young 'uns will appreciate the highly realistic sprog simulation here). Only two items can be held – to be precise, pocketed – at once, and it is not easy to work out where to drop them. Some, like the flower killer, are a little more obvious than others, such as the bomb (what kind of a town is this to bring a young lad up in?).

There are numerous locations to be explored, ranging from a denture factory to a graveyard which is suitably spook-infested. The ghosts, fortunately enough, seem to be vunerable to a well-aimed pea from a well-aimed peashooter. Perhaps Jack would be happier in Ghostbusters. The peashooter has similarly devastating effects on other fragile items, but the police cat is apparently immune to small-bore weapons. Unfortunately for Jack, but fortunately for the phantoms, the peashooter disintegrates on dropping.

Still, the worst the undead can do is impart a dose of nappy rash, so our junior exorcist remains unzapped to continue on his naughtiness. Another example of the lack of civil awareness in this mythical town is the ease in which our hero can breeze into the cells of the local nick and liberate a few of the inmates. They'll have a bit of explaining to do when they get rounded up . . .

The graphics are well designed, the music can be turned off, and the animation is smooth and precise. The puzzles require a bit of thought, and a lot of planning, so allocate a good few hours for this game. All in all a polished effort from the Northern Gremlins.

Author: Gremlin Graphics
Price: £8.95

Nigel

The concept of Jack the Nipper apeals to me – toddler trouble, junior japes- call it what you will. The Mode 1 graphics are oh so pretty with a black outline to give a cartoon effect. As you play the role of Jack a broad grin grows on your face, and a warm feeling of glee glows within you as you cause untold mayhem.

Going into the china shop to smash plates is the kind of recreation that any tot would love to take part in. I cannot fault the programming, I cannot fault the game design and I cannot fault the graphics yet I suspect that once I have completed the game I will not return to it. But that awaits me I've still the rating of Goody Goody.

14/20

Liz

When a new game arrives from Gremlin you don't know what to expect, all their stuff is so different. Bounder was so different to Thing on a Spring which in turn is nothing like Jack the Nipper. All you can be sure of is that the program will be worth the shekels.

Jack the Nipper is a problem solving program in the style of a Wally game. The locations are fun, the micro shop a great place to cause trouble – I have a habit of going into computer shops to wind up salesmen, asking them questions I know they can't answer. If only I could find out how to release the prisoners.

Jack the Nipper is a fun program which offers good value and proves that the budget game has not yet wiped out the full price title.

17/20

Colin

When the mega-cute advertising caught my eye, I thought "No, it can't be THAT bad". Well, it is and it isn't. The sprites are large and Beano-style (do I detect a Sweeny Toddler influence here?), even if the mother of the piece bears a striking resemblance to the museli-chomping middle-class mum created by Posy in the Guardian. So cute it definitely is.

But there's a lot of schoolboy humour there in wall posters and visual gags. The plot and gamesplaying aspect is much thinner, owing more than a little to Wally Week et al, but if you like The Dandy, then you'll love this.

16/20

Advantage

PCW & CPC SOFTWARE

OUR DISCS RUN ON ALL PCW AND CPC COMPUTERS

THE COMPLEAT CP/M UTILITIES £11.95 (Members: £9.95)

CPM II now features a Z80 Monitor, Filesplitter and Erased File Finder. Includes a Full Screen Text Editor; 20 function File Manager (multiple erase, rename, hide, squeeze, unsqueeze, print etc); Disc Sector Editor; Unerase erased programs; Z80 Assembler, Reverse Assembler, Linker & Library; File Scanner, Editor, Compare; String Search; Bad Sector Eliminator; Typewriter Emulator; plus improved versions of PIP, DDT, LOAD, SUBMIT, DIR, DUMP, TYPE.

LIGHT ENTERTAINMENT £9.95 PER DISC (Members: £7.95)

CPM III Seven more games have been added to our popular "CP/M GAMES COMPENDIUM". These are Mastermind, Life, Rubik's Cube, Noughts & Crosses, Battleship, Nim and Ping-Pong. Included are the famous Colossal Cave Adventure with game save feature, Chess, Othello, Golf Simulator, Biorhythm Calculator, Word-Search Puzzle Maker, Calendar Generator, Maze Designer & Banner Printers.
BASIC I is a collection of 22 diversions and amusements for CPC and PCW Mallard BASIC. Games include the classic Star-Trek, Space Trader, Lunar Lander, Hunt, Blackjack, Chase, Boggle, Baseball, Civil War, Craps, Bee Attack, Baccarat, Square and Quest, a text adventure.
Other programs are: Calculator, Loan Estimator, Weather Forecaster, Horoscope, Home Budget, Investment Evaluator, Poster and Label Printers.

"C" PACKAGE £13.95 (Members: £11.95)

Contains files and programs to help both the novice and experienced programmer write and compile C language programs. * Powerful compiler * Full screen program editor * 25k of on-disc documentation * Worked examples * The complete source code for the compiler * Utilities * Game * User Support

CP/M PROGRAMS £11.95 PER DISC (Members £9.95)

CPM IV includes Inventory Manager/Database; Text Editor, Word Count, Spelling Checker with easy-to-edit Starter Dictionary, Alphabetical Sort; Library Utility for organising and cataloging files and saving disc space, (includes four programs); Keyboard Definer, Synonym, Password, File Scrambler, Unspooler for continuing work while printing; File Squeeze and Unsqueeze saving up to 40% disc space, Squeezed File Viewer, Help Organiser plus improved Directory.
CPM V contains a Modem Communications package plus many more useful utilities and functions.

NATIONAL & INTERNATIONAL USER GROUP

Join our fast-expanding independent user group, supporting the Amstrad range of computers, and receive monthly Newsletters, user-support, the opportunity to share views, programs and ideas, plus £2 off each of the discs above. The membership fee is £8.95 per year (UK) or £13.95 (Overseas)

Advantage (DEPT U10) 33 MALYNS CLOSE CHINNOR
OXFORDSHIRE OX9 4EW

All discs contain comprehensive documentation files. Some software is Public Domain which is supplied free of charge. Earlier versions can be upgraded by returning the disc with £1.95.

NOTE: ALL PRICES INCLUDE POST PACKING AND VAT AT 15%
* OVERSEAS ORDERS, PLEASE ADD £1 PER DISC

DUST COVER SETS

Amstrad PCW8256/8512 £11.95 per set

In pale grey-proofed nylon, treated with an anti-static inhibitor, MONITOR & PRINTER covers piped in green.
Computer name hot foil printed on KEYBOARD cover.

Amstrad CPC 6128/464/664 £7.00 per set

Matching dark grey proofed nylon, treated with anti-static inhibitor, MONITOR cover piped in RED for 464, 664 and 6128.

Popular Printer Covers to match above

AMSTRAD DMP2000 BROTHER M1009 CANON PW1080A, EPSON FX80, RX80, LX80, MANNESMAN MT80, SHINWA CPA80, TAXAN P810 ALL £4.50
Large range of other printers available on request.

Prices inc. postage in UK, overseas customers please add Europe 50p, others £2.00 (air-mail), please state model and colour or monochrome.

BBD COMPUTER DUST COVERS
ACU
The Standish Centre, Cross Street
Standish Wigan WN6 0HQ.

Telephone: 0257 422968

"Available in Southern Hemisphere from TECH-SOFT
324 Stirling Highway, Claremont 6010, West Australia. Tel: (09) 385 1885".

NEWCROWN COMPUTERS LTD.

AMSTRAD **TEL: 0582 455684** AMSTRAD

TOP SELLERS

Elite	£12.95
Spindizzy	£7.50
Spitfire 40	£7.50
Maths 'O' Level (Examiner)	£8.46
Physics 'O' Level (Examiner)	£8.46
Chemistry 'O' Level (Examiner)	£8.46
Maths 'O' Level (Revision)	£12.71
Physics 'O' Level (Revision)	£12.71
Chemistry 'O' Level (Revision)	£12.71
Biology 'O' Level (Revision)	£12.71
French 'O' Level (Revision)	£12.71

DISC BEST SELLERS

Sorcery +	£11.86
Mini Office II	£16.96
Elite	£15.96
Pitman Typing Tutor	£11.50
Transmat	£10.16
Tasword 6128/D	£19.95
Protext	£22.91
Toolkit (Beebugsoft)	£15.26
Masterfile	£25.46
Mastercalc	£19.95
Maths 'O' Level (Examiner)	£12.71
Physics 'O' Level (Examiner)	£12.71
Chemistry 'O' Level (Examiner)	£12.71
Way of the Tiger	£11.95
Spindizzy	£11.95
Master File III	£33.95
Maths I 'O' Level (Revision)	£12.71
Maths II 'O' Level (Revision)	£12.71
Exploding Fist	£21.71
Bridge Player III	£13.56
Music System	£16.96
Tank Commander	£11.01
Tau Ceti	£12.71
Sweevo's World	£10.00
Zoids	£11.85

8256 SOFTWARE

Supercalc 2	£42.46
3D Clock Chess	£16.95
Bridge Player	£16.96
Hitch Hikers Guide	£24.50
Touch-n-Go	£20.95

Cyrus II Chess	£13.56
DR Draw or DR Graph	£42.46
Devpac 80 or Pascal 80	£33.96
The Torch or The Knife	£11.01
Zork1/Zork2/Zork3 (each)	£19.55
Highsoft 'C' (compiler)	£33.96
Tasword 8000	£21.21
Nominal or Purchase Ledger	£28.05
Database or Payroll (Sage)	£59.49
Starcross or Suspended	£19.55
Popular Accounts (Sage)	£84.15
Popular Combo (Sage)	£127.49
Spellbreaker or Wishbringer	£24.44

AMSTRAD HARDWARE

PCW 8512	£539.45
PCW 8256	£431.35
CPC 6128 (colour)	£375.95
CPC 6128 (green)	£281.95
CPC 464 (colour)	£281.95
CPC 464 (green)	£187.95
DDI-1 Disc Drive	£150.35
FDI-1 Disc Drive	£93.95
Electric Studio Light Pen for PCW 8256-8512	£69.95
DMP 2000 Printer	£150.35
SSA-1 Speech Synthesiser	£26.90
JY-2 Joystick	£9.90
RS232 Interface (8256)	£63.79
RS232 Interface (464-6128)	£46.95
3" Disc (Box of 10)	£40.00
3" Double Density Disc (Box of 10)	£65.70
Data Recorder (Sanyo)	£33.00
Printer lead	£9.95
MP2 Power Supply	£26.90
Disc Drive Connector lead	£6.50
Extension Cable	£9.95
Cassette Lead to 664-6128	£3.50

AMSTRAD BOOKS

Amstrad Basic (Part I & II) each	£18.45
Concise Basic Spec.	£17.45
Concise Firmware Spec.	£18.45
Disc Drive Firmware Spec.	£9.20

Our complete price list is much bigger than this, please ring for details or send an S.A.E. for our catalogue.

All prices include VAT & delivery in UK only. Overseas customers please add 50p per software for Europe and £2.00 per software for the rest of the world.

Mail order customers please make cheques payable to:

NEWCROWN COMPUTERS LTD.
98-100, High Town Road,
Luton, Beds LU2 0DQ, UK
Tel: (0582) 455684

VISA

CYCA LTD.

287 CALEDONIAN ROAD, LONDON N1 1EG
TELEPHONE: 01-700 4004

AMSTRAD

CPC 464 Green	£173 + VAT
CPC 464 Colour	£260 + VAT
CPC 6128 Green	£260 + VAT
CPC 6128 Colour	£350 + VAT
DMP 2000 Printer	£139 + VAT
PCW 8256	£399 + VAT
PCW 8512	£499 + VAT
CF2 Floppy Disc	£3.75 + VAT
CF2DD Floppy Disc	£5.00 + VAT
Printer Ribbon DMP 2000	£5.00 + VAT
Printer Ribbon 8256/8512	£5.00 + VAT
JY2 Joystick	£13.00 + VAT
RS232 Serial Interface	£43.00 + VAT
CPS8256 RS232 (use with PCW 8256)	£59.00 + VAT

PRICES INCLUDE POSTAGE & PACKING

CYCA LTD

287 Calendonian Road, London N1 1EG

VISA CREDIT CARDS HOT LINE AMERICAN EXPRESS
01-700 4004

STORM



Mastertronic – the word means cheap, cheerful, competent computing. They make few claims on originality, and Storm certainly breaks little new ground. The story so far (called Part One, doubtless there are sequels in store for us lucky people) concerns Mr Storm, warrior by trade, and his unfortunate wife Corrine. She has been turned into a helpless prisoner by the evil Una Cum, who, after being driven mad by being the only person in the story with a surname, locked her in his laboratory lair and waltzed off in search of a box called The Fear.

Meanwhile Storm (It could have been worse, he could have been called Light Drizzle With Sunny Patches Later) has enlisted the help of his stout friend Agravain Undead, Wizard and Weedkiller (Undead isn't a surname, more a way of life).

Of course they plan to spring young Corrine from the den of dastardly doings, but Una Cum (boo, hiss) hasn't gone gallivanting about the countryside without a thought for his captive, goodness me no. He's left a swarm of evil minions (close relatives of Pickled Onions) to thwart the sinewy thews of our friend Storm (hurrah!) and his comrade Agrophobia Unzipped (hooray!). They have wits to pit, and into battle they stride.

Luckily for the two intrepid would-be rescuers, Una Cum and co. are a messy, forgetful bunch. Strewn around in liberal fashion in the maze which comprises the Lair are scrolls and amulets with which to deal mighty blows to the forces of Evil, Nastiness and Murky Misdeeds. Also left by the cleaning lady are pieces of armour which prevent the Hotel Waiters of Hades from hacking (oh!) Stormy and Aggy Babes limb from muscle-bound limb, and food and restorative fluids (honest), left over from the Lairwarming party the night before. These raise energy levels, and help the dynamic duo work, hack and slay.

But all is not so cut and dried. There are Cabbalas, which might sound like a chocolate bar to the uninitiated, but the wise Aggers know that they hide Mystery Prizes, sometimes good, sometimes bad. Our two mighty warriors are not to be put off by such puny traps, and plough forward into the depths of the maze. Minions, by the way, are apparently generated by Minion Generators, which can be temporarily put out of action with a well-aimed thwack. This lasts until the thwacker leaves the room; should he return he will find that the dreaded Service Minion has been and fixed the problem, and nastiness aplenty is once again springing forth from these phasmagorical photocopiers.

To release the captive Corrine (remember her, the token female?) three snake brooches have to be collected, They, along with the other items in this muscle-bound bash, are depicted in chunky, multicoloured form. The action is viewed from above, and all the player sees of the participants in this game is two arms and a hairstyle. Oh, and the occasional dagger.

There's enough here to keep the inveterate dwarfslayer happy for a bloodsoaked hour or two. But who said Gor Blimey?

Author: Mastertronic
Price: £1.99

Nigel

The front cover says it all. Gothic lettering, beweaponed Nethanderal Rambo with a notched chopper raised high, leopard-skin clad WAFF (weak and feeble female) cowering helplessly in the lightning-lit background, what more could a frustrated epic fantasiser wish for? Well, better graphics.

The game shows the influence of a lot of things, Gauntlet (a rather wonderful four (!) player Atari arcade game in similar style), Swords and Sorcery, Moorcock et al. It doesn't show much originality, but it is playable and might keep a devotee happy for a while.

13/20

Liz

This is one of the games which was overshadowed by Kane. Storm is an OK sort of game but try as I might I could not get hooked on it. I find this strange because I'll happily spend a fortune on Gauntlet, the arcade denizen on which Storm is based.

But the poor joystick response and the feeling of being lost makes the game feel claustrophobic. It seems a shame to give a budget game a low rating but Mastertronic has created the high standard and must keep to it.

9/20

Colin

No, nothing to do with inclement weather, it's another arcade adventure in which you have to find the right magical objects to reclaim the fair maiden.

This might have been just another of many if it were not for the excellent use of colour in the design of the graphics. This must rival games like Equinox and Sorcery for making the most use of the available colours

There certainly seem to be many screens to the game which should keep map makers happy for quite a while. All round a highly polished game with some great attention to graphic detail.

12/20

TYPESETTING AMSET

£199.98 + VAT

For the first time
a major suite of Typesetting software
is available to the Amstrad user.

PROFESSIONAL typesetting.
Package includes H & J, kerning, indents, multicolumn, depth count, character count, rules.

20 FOUNTS from 4½-72 point.
Digital setting on Linotron 202N.

QUALITY
Typeshare - The nation's biggest bureau service

TUTORIAL
comprehensive step by step tuition is included.

EXPANSION
- AMCOM Error free comms.
- AMCOUNT Counting Ad. Pack.
- AMAT Advanced Typography.

TRIAL OFFER
£40.00 + VAT for trial pack.

'Phone for brochure

Typeshare

Typeshare Ltd, Alan House, 55-59 Saffron Hill
Hatton Garden, London EC1N 8QX. 01-405 7937.

THE GREAT COMPUTER ONE

CHALLENGE

FIND THE BEST TYPING TUTOR AROUND!

Find any computer store or Amstrad dealer who does **NOT** stock **Computer One's** "Typing Tutor", and we will send the first 25 who phone us a **FREE** copy of the "Typing Tutor" !!! All other callers will receive £5 OFF **Computer One** SOFTWARE VOUCHERS!

So . . . call us at **Computer One** – with the details (please check with the stores' staff) – on our **Competition Hotline *0223 861967***, and you could win the **Number One Typing Tutor Around!**

OFFER ENDS 4pm, 20th August 1986.

SPEEDYSOFT

024 026 3703 (24 HRS)

ALL ORDERS NORMALLY DESPATCHED
THE SAME DAY WE RECEIVE THEM

SEND £1 (refunded with first order) for 48-PAGE ILLUSTRATED CATALOGUE.

BATMAN — NEW!
"AN ALL-TIME CLASSIC." (C&VG)
"Colourful, fun-packed arcade adventure ... destined to become an all-time classic." (Computer & Video Games 05/66)
464/664/6128. (Ocean) Cassette £8.95 Disc £14.95

FOUR ADVENTURES
"EXCEEDINGLY GOOD VALUE FOR MONEY." (Crash! 04/86)
RING OF DARKNESS by Wintersoft. THE CASE OF THE OBSCENE MURAL by Nic Ford. The MICROMAN by T. Kemp. GALAXIAS by Fergus McNeil.
464/664/6128. (Global) Cassette £7.95

ALIEN HIGHWAY — NEW!
"THIS GAME IS EXCELLENT." (Amtix 06/86)
"The graphics are verging on perfection and the game itself is no pushover ... very addictive, almost like an adventure when you get further into the game ... I thought it was marvellous." (Amtix 06/86)
464/664/6128 (Vortex) Cassette £8.95 Disc £13.95

COMMANDO — NEW!
"Provides the same kind of excitement I felt when I first played Elite ... I shall go back to it time and time again." (Micro User 06/86)
464/664/6128. (Elite) Cassette £8.95 Disc £14.95

"STUNNING SPEED, FANTASTIC SERVICE."
(H. CHIN HO SAN, MALAYSIA)

EQUINOX — NEW!
"HOURS OF MANIC ACTION." (Your Computer 06/86)
"The unusual combination of arcade adventure and shoot-em-up had this reviewer hooked from the start ... if you've got an Amstrad and you haven't got a copy of this, you must be stark, raving mad." (Computer & Video Games 06/86)
464/664/6128) (Mikro-Gen) Cassette £9.95

GET DEXTER! — NEW!
THE FRENCH NUMBER ONE GAME.
"Superbly detailed and colourful graphics ... there are many crafty puzzles to get your teeth into ... an excellent game which I can heartily recommend." (Computing with Amstrad 06/85)
464/664/6128 (PSS) Cassette £9.95 Disc £14.95

STRIKE FORCE HARRIER
GREAT FLIGHT/BATTLE SIMULATOR.
"The graphics are excellent ... the flying simulation will test your skills and the combat and mission will give you plenty to keep working at." (Amstrad Action 04/86)
464/664/6128. (Microsoft/Amsoft) Cassette £9.95 Disc £14.95

HEAVY ON THE MAGICK — NEW!
THE DEFINITIVE ADVENTURE.
"Gargoyle has yet again done everything right. The graphics are, as usual, superb and evocative ... I found plenty to do, with examinable objects galore." (Popular Computing Weekly 05/86)
464/664/6128. (Gargoyle) Cassette £9.95

"YOUR NEW CATALOGUE IS BRILLIANT!"
(C. GRIMSHEI, NORWAY)

MOON CRESTA — NEW!
WIN A "MOON CRESTA" ARCADE MACHINE!
"Hand/eye co-ordination is all, with a quick trigger finger being the difference between success and oblivion ... one of the classic coin-up games of all time.' (Computer Gamer 06/86)
464/664/6128. (Incentive) Cassette £7.95 Disc £12.95

THE STICK — NEW!
"With about half an hour's practice, you will be able to beat all your high scores, due to the extra fast response. The Stick excels in the sports games." (Compunet)
464/664/6128. (Lightwave) The best Joystick ever: £13.00

TAU-CETI
"If Tau-Ceti is an excellent game, then the special edition is an incredible game. No Amstrad disc owner should be without it." (Computer Gamer 06/86)
464/664/6218. (CRL) Cassette £9.95 Enhanced Disc version £14.95

HOW TO ORDER
UK prices include VAT. Export prices are the same, because of the extra work involved. Remember to add postage & packing: UK £1 per order: Europe £1.50 per program: Outside Europe £2.00 per program. Satisfied customers in 64 countries. To order quote reference 'AMU 18'
BY PHONE: Call 024 026 3703, 24 hrs a day. Leave your name, address, phone number, order, computer type, credit card number, expiry date.
BY POST: Send your order to SPEEDYSOFT, The Blacksmiths, Radnage Common, Bucks HP14 4DH, England. Make sterling cheque/PO payable to Speedysoft. Don't forget to add p&p.

VISA
ACCESS
EUROCARD
MASTERCARD



What it offers the Amstrad user . . .

Electronic mail is much cheaper than the post

Sending mailbox messages to other subscribers, whose numbers are rapidly growing, is the cheapest form of communication possible. You can send a message of any length to another mailbox for less than the cost of a first-class stamp. And it doesn't cost a penny more to send the same message to 500 different mailboxes! Even a message sent to a mailbox on the other side of the world only costs 30p.

The biggest bulletin board of them all

The number of bulletin boards is growing rapidly. The only snag is that the vast majority are single-user boards – which means lots of other people are also trying to make contact and all too often all you get is the engaged tone. But with the MicroLink bulletin board there is no limit to the number of people using it at the same time. And no limit to the number of categories that can be displayed on the board.

Give your micro mainframe power

With MicroLink your micro becomes a terminal linked directly to the Telecom Gold mainframe computer, and able to tap its tremendous power and versatility. Right away you'll be able to use giant number-crunching programs that can only run on a mainframe.

The mailbox that is always open

MicroLink is in operation 24 hours a day, every day. That means you can access your mailbox whenever you want, and from wherever you are . . . home, office, airport – even a hotel bedroom or golf club! No-one needs to know where you are when you send your message.

We're only a local phone call away

The majority of MicroLink subscribers can connect to our mainframe computer in London by making a local phone call. This is possible because they use British Telecom's PSS system, which has access points all over Britain. A local phone call is all you need, too, for direct access via MicroLink to all the other countries belonging to the international Dialcom system.

Telemessages – at a third off

The modern equivalent of the telegram is the telemessage. Send it before 10pm and delivery is guaranteed by first post the following day (except Sunday). The service was intended for people phoning their message to the operator, which costs £3.50 for 50 words. But you can now use it via MicroLink, for only £1.25 for up to 350 words! For an extra 65p your message can be delivered in an attractive greetings card.

Go teleshopping on your micro

With MicroLink you can study the British Rail timetable – and then buy your ticket in advance. You can book theatre tickets. And even order a bouquet of flowers. It's all part of the tele-shopping revolution!

Send and receive telex messages

With MicroLink you can turn your micro into a telex machine, and can send and receive telex messages of any length. You will be able to communicate directly to 96,000 telex subscribers in the UK, 1¼ million worldwide – and even with ships at sea via the telex satellite network. Business people can now send and receive telexes after office hours, from home or when travelling.

What does it all cost?

Considering all the services you have on tap, MicroLink is remarkably inexpensive. You pay a once-only registration fee of £5, and then a standing charge of just £3 a month. On-line costs are 3.5p a minute (between 7pm and 8am) or 11p a minute during office hours. There is an additional 2.5p a minute PSS charge if you are calling from outside the 01- London call area. Charges for telex, telemessages and storage of files are given on the next page.

How much it costs to use MicroLink

Initial registration fee: £5.

Standing charge: £3 per calendar month or part.

Connect charge: 3.5p per minute or part – cheap rate; 11p per minute or part – standard rate.
Applicable for duration of connection to the Service. Minimum charge: 1 minute.
Cheap rate is from 7pm to 8am, Monday to Friday, all day Saturday and Sunday and public holidays; Standard rate is from 8am to 7pm, Monday to Friday, excluding public holidays.

Filing charge: 20p per unit of 2,048 characters per month.
Applicable for storage of information, such as telex, short codes and mail files. The number of units used is an average calculated by reference to a daily sample.

Telex registration: £10.

Outgoing telex: 5.5p per 100 characters (UK); 11p per 100 (Europe); 18p per 100 (N. America); £1.25 per 400 (Rest of world); £2.75 per 400 (Ships at sea).
Deferred messages sent on the night service are subject to a 10 per cent discount.

Incoming telex: No charge.

It is not possible to deliver a telex without a mailbox reference. If a telex is received without a mailbox reference the sender will be advised of non-delivery and asked to provide a mailbox address.
Each user validated for telex and using the facility will incur a charge of 6 storage units a month. Further storage charges could be incurred depending on the amount of telex storage and the use made of short code and message file facilities.

MicroLink PSS service: 2.5p per minute or part (300 baud); 3p per minute or part (1200/75 baud).
Only applies to users outside the 01-London call area.

Telemessages: £1.45 for up to 350 words.
Telemessages can be sent with an illustrated greetings card for 75p extra.

Radiopaging: No charge.
If you have a BT Radiopager you can be paged automatically whenever a message is waiting in your mailbox.

International Mail: For the first 2,048 characters – 20p to Germany and Denmark; 30p to USA, Australia, Canada, Singapore, Hong Kong and Israel. For additional 1,024 characters – 10p; 15p.

These charges relate to the transmission of information by the Dialcom service to other Dialcom services outside the UK and the Isle of Man. Multiple copies to addresses on the same system host incur only one transmission charge.

Billing and Payment: All charges quoted are exclusive of VAT. Currently all bills are rendered monthly.

Software over the telephone

MicroLink is setting up a central store of software programs which you'll be able to download directly into your micro. The range will include games, utilities, educational and business programs, and will cover all the most popular makes of micros.

Talk to the world – by satellite

MicroLink is part of the international Dialcom network. In the USA, Australia and a growing number of other countries there are many thousands of users with electronic mailboxes just like yours. You can contact them just as easily as you do users in Britain – the only difference is that the messages from your keyboard go speeding around the world via satellite.

What you need to access MicroLink

You must have three things in order to use MicroLink: a computer (it can be any make of micro, hand-held device or even an electronic typewriter provided it has communications facilities), a modem (it can be a simple Prestel type using 1200/75 baud, or a more sophisticated one operating at 300/300 or 1200/1200 baud), and appropriate communications software.

MicroLink
in association with
TELECOM GOLD *

Application Form

ACU9

I/We hereby apply to join MicroLink

(✓) ☐ I enclose my cheque for £5 payable to Database Publications as registration fee to MicroLink.

(✓) ☐ I also wish to use Telex. I authorise you to charge an additional £10 to my initial bill for validation.

✓☐ I confirm that I am over 18 years of age.

✓☐ I confirm that I accept the terms and conditions for the time being in force, a copy of which are available on request.

I intend to use the following computer ____________

Signature ____________

Date ____________

FOR OFFICE USE ONLY:
Mailbox assigned ____________
Start date ____________
Password ____________

SEND TO:
MicroLink
Database Publications
Europa House
68 Chester Road
Hazel Grove
Stockport SK7 5NY.

* *Telecom Gold is a trademark of British Telecommunications plc.*

Name ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Position ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Company ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Address ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Postcode ☐☐☐☐☐☐☐☐ Daytime telephone ☐☐☐☐☐☐☐☐☐☐

Commencement of Service
Please indicate month of commencement ☐☐ 19 ☐☐
Allow 10 days for validation of mailbox

Payment
Whilst Database Publications Ltd is the supplier of all the services to you, the commission and billing thereof will be handled by Telecom Gold as agents for Database Publications Ltd.
Date of first payment to be on 15th of month following commencement.
Please complete billing authorisation form A, B or C below:

(✓) ☐ **A. Direct Debiting Mandate** *(Enter full postal address of Bank Branch)*
To ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

I/We authorise you until further notice in writing to charge to my/our account with you on or immediately after 15th day of each month unspecified amounts which may be debited thereto at the instance of British Telecommunications plc – TELECOM GOLD by Direct Debit. Bills are issued 10 days before debit is processed.

Name of Account to be debited ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Account Number ☐☐☐☐☐☐☐☐

(✓) ☐ **B. Please debit my/our Access/Visa/*American Express account number** ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐
* *Overseas subscribers only*

I/We authorise you until further notice in writing to charge to my/our account with you on or immediately after 15th day of each month unspecified amounts which may be debited thereto at the instance of British Telecommunications plc – TELECOM GOLD. Bills are issued 10 days before charge is applied to your account.

(✓) ☐ **C. Please invoice the company/authority.**
If you select this option, which is ONLY AVAILABLE to government establishments and Public Limited Companies, we will require an OFFICIAL ORDER to accept unspecified amounts.

Roland in the Haunted House is a version of that old favourite arcade game, Pacman. It features gobbling action, power pills, increasing difficulty, a high score table and a choice of three mazes. There are four ghosts and an extra life at 10000 points.

First type in Listing 1. When you reach line 360, enter lines 10000-10010 and type:

GOTO 10000

Type in lines 360-480 using the numeric keypad for the digits. After use, lines 10000-10010 may be deleted. Type in the rest of the listing as normal, then save it with:

SAVE "HAUNTED

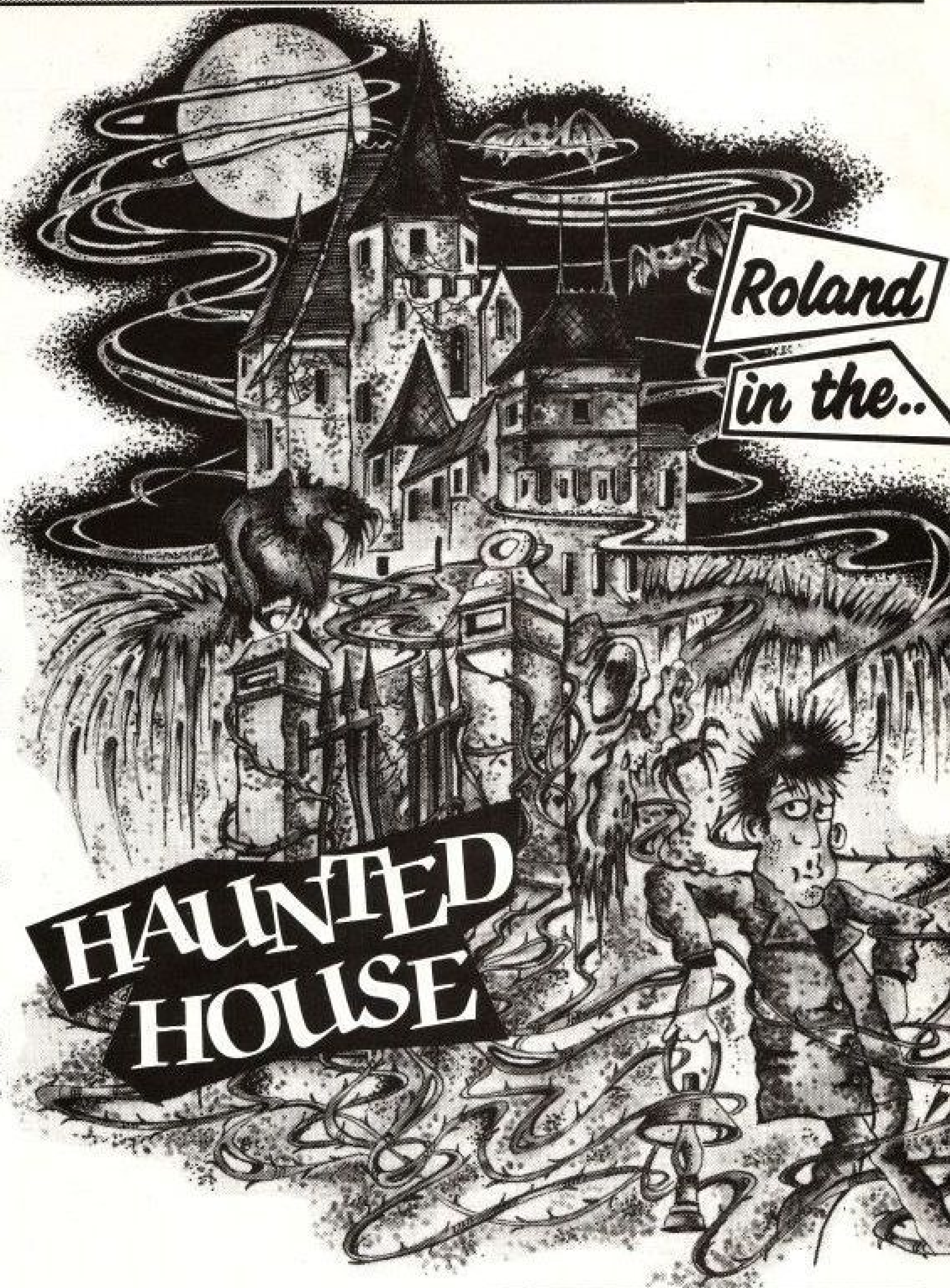
Type in Listing 2, save it on to a separate tape or disc in case of mistakes and then run it. If all goes well, save the generated code after Listing 1 with:

SAVE "HHCODE",B,20000,4800

Reset the computer and run the program from the beginning with:

RUN "HAUNTED

Joystick or keyboard can be used. The control keys are Z and X for left and right, + and ? for up and down, M to pause, S to restart, A to abort the game.




```
****HAUNT***

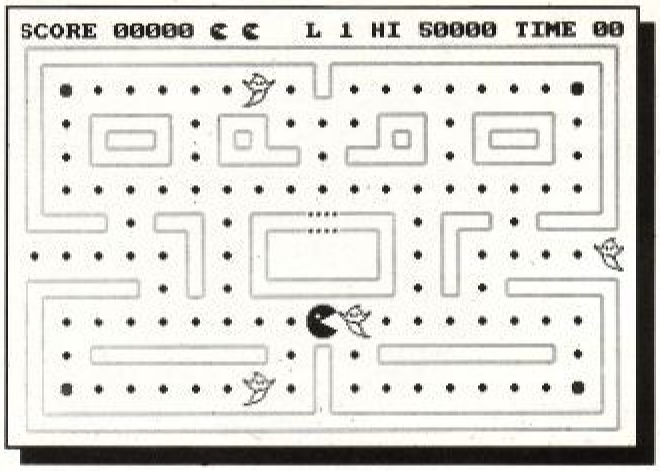
10 DIM HI$(5):DIM H$(5):RESTORE 20:FOR N
   =1 TO 5:READ HI$(N),H$(N):NEXT:SP=1:S
   C$="00000"
20 DATA "50000","EXCELLENT","40000","VER
   Y GOOD","30000","GOOD","20000","FAIR"
   ,"10000","NOVICE"
30 PAPER 0:PEN 1:BORDER 0:INK 0,0:INK 1,
   24:INK 2,2:INK 3,6:MODE 1
40 '************MC ROUTINES************
50 MEMORY 19999:IF PEEK(20016)<>221 THEN
    LOAD "!HHCODE",20000
60 START=20016:SCLINE=21666:MZDATA=21794
   :SPDATA=22481:SCORE=25016:JYKEYS=2133
   3:LKEYS=48:HKEYS=84:MZADD=21622
70 HSCORE=SCLINE+14
80 ENT 1,15,1,1
90 ENT 2,50,-1,1
100 ENT 3,15,-10,1
110 ENT -4,20,2,1,20,-1,1
120 ENT 5,20,-5,1
130 ENV 1,15,-1,5
140 SYMBOL 255,62,127,204,208,240,252,12
    7,62
150 MODE 1:INK 1,24:PEN 1:LOCATE 2,20:PR
    INT "IS THIS A GREEN SCREEN MONITOR
    ? Y/N";:I$="":WHILE I$<>"Y" AND I$<>
    "N":I$=UPPER$(INKEY$):WEND
160 IF I$="Y" THEN I1=24:I2=6:I3=14 ELSE
     I1=24:I2=2:I3=6
170 GOSUB 330
180 CLS:LOCATE 11,13:PEN 1:PRINT "SELECT
     MAZE  (1-3)"
190 I$=INKEY$:IF I$<"1" OR I$>"3" THEN 1
    90
200 ADD=MZDATA+(ASC(I$)-49)*229:POKE MZA
    DD,ADD MOD 256:POKE MZADD+1,ADD\256
210 '************START GAME************
220 MODE 1:PEN 1:FOR N=1 TO 5:POKE HSCOR
    E+N-1,ASC(MID$(HI$(1),N,1)):NEXT
230 IF STK=1 THEN POKE JYKEYS+1,36:POKE
    JYKEYS+2,187 ELSE POKE JYKEYS+1,LKEY
    S:POKE JYKEYS+2,HKEYS
240 CALL START
250 PEN 1:LOCATE 18,14:PRINT " GAME ";:L
    OCATE 18,15:PRINT " OVER ";
260 FOR N=1 TO 5:MID$(SC$,N,1)=CHR$(PEEK
    (N+SCORE-1)+48):NEXT
270 FOR M=1 TO 5:IF SC$>HI$(M) THEN FOR
    N=4 TO M STEP -1:HI$(N+1)=HI$(N):H$(
    N+1)=H$(N):NEXT:HI$(M)=SC$:GOTO 290
280 NEXT:M=6
290 IF M<6 THEN GOSUB 610:GOSUB 530:GOTO
     180
300 FOR N=1 TO 1000:IF JOY(0)<>16 AND IN
    KEY(47)<>0 THEN NEXT N:GOSUB 530
310 GOTO 180
320 '************TITLE PAGE************
330 MODE 1:INK 1,I1:INK 2,I2:INK 3,I3
340 PEN 1:LOCATE 15,4:PRINT "ROLAND IN T
    HE";
350 LOCATE 1,6:PEN 2
354 '
355 'TYPE IN LINES 10000-10010 FIRST, TH
    EN TYPE "GOTO 10000"
356 'THEN USE THE NUMERIC KEYPAD FOR THE
     DIGITS IN LINES 360-480
357 '(THIS HAS BEEN REDEFINED TO PRODUCE
     GRAPHIC CHARACTERS)
358 '
360 PRINT " 12  121666212 12166621666621
    666216662  ";
370 PRINT " 55  555162555 55516253621645
    1664516232 ";
380 PRINT " 5366455364555 5555 55  55  5
    362 55 325 ";
390 PRINT " 5166255162555 5555 55  55  5
    164 55 145 ";
400 PRINT " 55  5555 555364555 55  55  5
    3662536414 ";
410 PRINT " 34  3434 343666434 34  34  3
    666436664  ";
420 PRINT "
                   ";
430 PRINT "        12  121666212 12166621
    6662       ";
440 PRINT "        55  555162555 55516645
    1664       ";
450 PRINT "        53664555 5555 55536625
    362        ";
460 PRINT "        51662555 5555 55366255
    164        ";
470 PRINT "        55  5553645536451664555
    3662       ";
480 PRINT "        34  343666436664366643
    6664       ";
490 PEN 1:LOCATE 12,20:PRINT "(C) C.WAKE
    LIN 1986"
500 PEN 1:LOCATE 11,22:PRINT "<SPACE>";:
    PEN 3:PRINT " KEYBOARD PLAY";:LOCATE
     11,24:PEN 1:PRINT "<FIRE>";:PEN 3:P
    RINT "  JOYSTICK PLAY";
510 FOR N=1 TO 5000:IF JOY(0)=16 THEN ST
    K=1:GOTO 590 ELSE IF INKEY(47)=0 THE
    N STK=0:GOTO 590
520 NEXT
530 '***********HI SCORE TABLE*********
540 MODE 1:INK 1,I1,I3:INK 2,I2:INK 3,I1
550 PEN 1:LOCATE 12,1:PRINT "TODAY'S GRE
    ATEST"
560 FOR N=1 TO 5:LOCATE 10,N*4+1:PEN 2-(
    N=SP):PRINT HI$(N):LOCATE 20,N*4+1:P
    RINT H$(N);:NEXT
570 FOR N=1 TO 5000:IF JOY(0)=16 THEN ST
    K=1:GOTO 590 ELSE IF INKEY(47)=0 THE
    N STK=0:GOTO 590
580 NEXT:GOTO 330
590 INK 1,I1:INK 2,I2:INK 3,I3:RETURN
600 '***********NEW HI SCORE**********
610 MODE 1:INK 1,I3:INK 2,I1:PEN 1:LOCAT
    E 12,1:PRINT "PLEASE ENTER NAME":SP=
    M
620 H$(M)="":FOR N=1 TO 5:LOCATE 10,N*4+
    1:PEN 2:PRINT HI$(N):LOCATE 20,N*4+1
    :PRINT H$(N);:NEXT
630 LOCATE 20,M*4+1:PEN 2:PRINT H$(M);
640 WHILE INKEY$<>"":WEND
650 I$=UPPER$(INKEY$):IF I$="" THEN 650
660 IF ASC(I$)=127 THEN H$(M)=LEFT$(H$(M
    ),LEN(H$(M))+(H$(M)<>"")):LOCATE 20,
    M*4+1:PRINT H$(M);"  ";:GOTO 640
670 IF ASC(I$)=13 THEN IF H$(M)="" THEN
    H$(M)="ANONYMOUS":RETURN ELSE RETURN
680 IF ASC(I$)<32 OR ASC(I$)>90 THEN 640
690 H$(M)=H$(M)+I$:IF LEN(H$(M))>10 THEN
     H$(M)=LEFT$(H$(M),10)
700 GOTO 630
10000 RESTORE 10010:FOR n=1 TO 6:READ a:
      KEY n+128,CHR$(a):NEXT
10010 DATA 150,156,147,153,149,154
```

Listing 1

Listing 2

```
*****HEXLOAD****

10 MEMORY 29999:lin=1000:MODE 2
20 he=0:ve=0:FOR x=30000 TO 33839 STEP 8
30 t=0:FOR m=0 TO 7:READ a$:a=VAL("&"+a$
   ):n=x+m:vt(m+1)=vt(m+1)+a:t=t+a:POKE
   n,a:NEXT:READ t1:IF t<>t1 THEN PRINT
   "HORIZONTAL CHECK ERROR IN LINE";lin:
   he=he+1
40 lin=lin+10:NEXT x
50 FOR m=1 TO 8:READ vt1:IF vt1<>vt(m) T
   HEN PRINT "VERTICAL CHECK ERROR IN CO
   LUMN";m:ve=ve+1
60 NEXT:PRINT "HORIZONTAL ERRORS ";he:PR
   INT "VERTICAL   ERRORS ";ve:PRINT "PR
   ESS A KEY"
65 IF he+ve>0 THEN STOP ELSE CALL &BB18
70 MODE 1:FOR n=40000 TO 40033:READ a:PO
   KE n,a:NEXT
80 add=33825:FOR n=1 TO 14:READ a,b,c,d:
   PEN 2:LOCATE 1,1:PRINT CHR$(a)CHR$(b)
   ;:LOCATE 1,2:PRINT CHR$(c)CHR$(d);:CA
   LL 40000,add:add=add+64:NEXT
90 PEN 1:PRINT:PRINT "ALL DONE"
100 END
1000 DATA 30,4E,A2,54,22,55,D1,57, 787
1010 DATA B8,61,55,53,30,54,76,54, 783
1020 DATA DD,21,C0,61,CD,12,50,DD, 1067
1030 DATA 36,09,00,DD,36,0C,00,DD, 571
1040 DATA 36,08,02,DD,36,00,09,DD, 572
1050 DATA 36,01,08,DD,36,0E,02,DD, 575
1060 DATA 36,03,00,DD,36,0F,01,DD, 569
1070 DATA 36,10,00,01,18,00,11,D2, 322
1080 DATA 61,21,C2,54,ED,B0,CD,3B, 1085
1090 DATA 50,CD,58,54,CD,4B,53,DD, 1041
1100 DATA 7E,04,B7,CC,74,4F,FE,01, 967
1110 DATA CC,8D,4F,FE,14,CC,BF,4F, 1172
1120 DATA DD,7E,0D,B7,CA,09,4F,CD, 1038
1130 DATA EC,50,DD,7E,04,B7,C4,DD, 1267
1140 DATA 4F,DD,7E,03,B7,C2,21,4F, 918
1150 DATA DD,7E,0C,B7,C4,38,52,DD, 1097
1160 DATA 7E,09,B7,20,22,3A,B7,61, 722
1170 DATA FE,05,30,1E,DD,7E,00,FE, 938
1180 DATA 09,20,07,DD,7E,01,FE,08, 658
1190 DATA 28,10,3E,20,DD,77,09,3E, 561
1200 DATA 14,DD,77,0A,32,72,61,CD, 836
1210 DATA 1C,52,3A,BD,61,47,87,80, 788
1220 DATA 87,87,ED,44,D6,90,F5,CD, 1383
1230 DATA E2,50,CD,20,54,F1,CD,E2, 1299
1240 DATA 50,DD,36,08,02,DD,7E,0F, 730
1250 DATA B7,28,0A,21,10,55,DD,E5, 817
1260 DATA CD,AA,BC,DD,E1,3E,2C,CD, 1320
1270 DATA 1E,BB,C4,93,54,3E,45,CD, 980
1280 DATA 1E,BB,CA,6C,4E,CD,84,54, 1026
1290 DATA C9,3A,BD,61,3C,FE,07,20, 898
1300 DATA 01,3D,32,BD,61,3A,B5,61, 734
1310 DATA DD,77,0D,CD,75,54,C3,37, 1009
1320 DATA 4E,DD,36,0B,02,21,F5,54, 728
1330 DATA DD,E5,CD,AA,BC,DD,E1,CD, 1664
1340 DATA 84,54,06,01,78,E6,03,3C, 636
1350 DATA DD,77,0E,C5,CD,20,54,C1, 1065
1360 DATA 78,87,87,C5,CD,E2,50,C1, 1291
1370 DATA 04,3E,28,B8,20,E6,3A,BE, 800
1380 DATA 61,3D,32,BE,61,B7,C8,DD, 1099
1390 DATA 36,09,00,DD,36,0C,00,DD, 571
1400 DATA 56,00,DD,5E,01,CD,D0,52, 897
1410 DATA 3E,23,77,32,72,61,CD,14, 702
1420 DATA BC,C3,37,4E,3E,01,CD,8F, 927
1430 DATA 50,21,DA,54,DD,E5,CD,AA, 1240
1440 DATA BC,DD,E1,DD,36,0B,06,DD, 1147
1450 DATA 35,DD,3E,03,C9,06,04,FD, 595
1460 DATA 21,D2,61,11,06,00,FD,CB, 819
1470 DATA 03,CE,FD,19,10,F8,21,E3, 1011
1480 DATA 54,DD,E5,CD,AA,BC,DD,E1, 1543
1490 DATA DD,36,0F,00,DD,36,08,01, 574
1500 DATA 3A,BD,61,87,87,ED,44,C6, 1117
1510 DATA 32,DD,77,0C,3E,03,C9,3E, 730
1520 DATA 64,CD,8F,50,21,EC,54,DD, 1102
1530 DATA E5,CD,AA,BC,DD,E1,DD,36, 1513
1540 DATA 0B,06,DD,36,0A,13,DD,36, 596
1550 DATA 09,08,3E,03,C9,47,C5,DD, 772
```




```
1560 DATA 5E,08,16,00,21,BD,54,19, 455
1570 DATA 7E,CD,8F,50,C1,DD,34,08, 1028
1580 DATA 3E,05,DD,BE,08,28,11,10, 559
1590 DATA E5,21,FE,54,DD,E5,CD,AA, 1425
1600 DATA BC,DD,E1,DD,36,0F,01,C9, 1126
1610 DATA DD,36,0C,01,DD,36,08,01, 572
1620 DATA 18,E7,21,00,00,22,B8,61, 603
1630 DATA 22,BA,61,22,BB,61,3E,01, 698
1640 DATA 32,BD,61,32,BF,61,3E,03, 739
1650 DATA 32,BE,61,CD,0D,BD,22,B6, 960
1660 DATA 61,CD,75,54,3A,B5,61,DD, 1060
1670 DATA 77,0D,C9,21,01,02,CD,75, 691
1680 DATA BB,21,A2,54,CD,86,50,E5, 1114
1690 DATA CD,73,50,3A,BE,61,3D,B7, 989
1700 DATA 28,0D,47,3E,20,CD,5A,BB, 700
1710 DATA 3E,FF,CD,5A,BB,10,F4,21, 1092
1720 DATA 01,14,CD,75,BB,E1,CD,86, 1094
1730 DATA 50,3A,BD,61,CD,80,50,CD, 1042
1740 DATA 86,50,C9,06,05,21,B8,61, 740
1750 DATA 7E,CD,80,50,23,10,F9,C9, 1040
1760 DATA C6,30,CD,5A,BB,C9,7E,23, 1090
1770 DATA B7,C8,CD,5A,BB,18,F7,21, 1169
1780 DATA BB,61,4F,7E,81,0E,00,FE, 886
1790 DATA 0A,38,05,D6,0A,0C,18,F7, 578
1800 DATA 77,2B,79,B7,20,ED,21,01, 769
1810 DATA 08,CD,75,BB,CD,73,50,3A, 975
1820 DATA B8,61,B7,C8,3A,BF,61,B7, 1193
1830 DATA C8,3D,32,BF,61,21,07,55, 724
1840 DATA DD,E5,CD,AA,BC,DD,E1,3A, 1517
1850 DATA BE,61,47,3C,32,BE,61,21, 788
1860 DATA 01,0D,CD,75,BB,3E,20,CD, 822
1870 DATA 5A,BB,3E,FF,CD,5A,BB,10, 1092
1880 DATA F4,C9,47,0E,C0,00,0D,20, 767
1890 DATA FC,10,F8,C9,DD,36,04,00, 996
1900 DATA 06,04,C5,68,26,00,29,54, 474
1910 DATA 5D,29,19,11,CC,61,19,E5, 731
1920 DATA FD,E1,2A,B6,61,54,5D,29, 1017
1930 DATA 29,19,29,29,29,19,22,B6, 430
1940 DATA 61,7C,CB,3F,CB,3F,CB,3F, 1019
1950 DATA CB,3F,CB,3F,CB,3F,3C,DD, 1079
1960 DATA 77,02,FD,CB,03,56,C4,F3, 1105
1970 DATA 51,CD,30,51,C1,10,C3,C9, 1020
1980 DATA CD,C2,51,FD,CB,03,56,C2, 1219
1990 DATA BE,51,DD,7E,02,DD,77,05, 965
2000 DATA FD,96,02,30,02,ED,44,FE, 1014
2010 DATA 02,28,30,DD,7E,05,CD,81, 776
2020 DATA 52,DD,56,06,DD,5E,07,CD, 922
2030 DATA D0,52,7E,FE,02,20,0C,FD, 969
2040 DATA 7E,03,CB,47,20,15,FD,34, 761
2050 DATA 03,3E,23,FE,15,38,04,FE, 689
2060 DATA 23,20,08,DD,7E,05,FD,77, 799
2070 DATA 02,18,23,DD,7E,05,3C,FE, 727
2080 DATA 05,20,02,3E,01,DD,77,05, 447
2090 DATA DD,BE,02,20,B3,FD,7E,02, 1005
```

```
2100 DATA C6,02,FE,05,38,02,D6,04, 735
2110 DATA FD,77,02,CD,81,52,FD,CB, 1246
2120 DATA 03,56,20,14,06,0B,FD,CB, 614
2130 DATA 03,4E,28,01,04,FD,CB,02, 584
2140 DATA 4E,28,02,04,04,FD,70,05, 498
2150 DATA CD,E6,52,CD,C2,51,CD,06, 1208
2160 DATA 53,C9,FD,CB,03,56,C0,DD, 1242
2170 DATA 7E,00,FD,BE,00,C0,DD,7E, 1108
2180 DATA 01,FD,BE,01,C0,FD,CB,03, 1096
2190 DATA 4E,20,04,DD,34,03,C9,FD, 844
2200 DATA CB,03,D6,FD,36,04,08,DD, 960
2210 DATA 34,04,DD,7E,08,C6,0E,FD, 876
2220 DATA 77,05,C9,FD,7E,04,3D,FD, 1022
2230 DATA 77,04,B7,C0,3E,23,FD,46, 918
2240 DATA 00,FD,4E,01,CD,13,53,FD, 892
2250 DATA 36,05,0B,FD,36,03,00,FD, 633
2260 DATA 36,00,09,FD,36,01,06,FD, 630
2270 DATA 36,02,01,C9,F5,DD,7E,0A, 860
2280 DATA 01,08,09,CD,13,53,F1,3D, 627
2290 DATA DD,77,09,C0,3E,23,32,72, 802
2300 DATA 61,01,08,09,CD,13,53,C9, 623
2310 DATA DD,7E,0C,3D,DD,77,0C,47, 843
2320 DATA 21,01,26,CD,75,BB,78,0E, 715
2330 DATA 00,FE,0A,38,05,D6,0A,0C, 561
2340 DATA 18,F7,F5,79,CD,80,50,F1, 1291
2350 DATA CD,80,50,78,B7,C0,FD,21, 1194
2360 DATA D2,61,06,04,11,06,00,FD, 593
2370 DATA CB,03,8E,FD,7E,05,E6,0D, 975
2380 DATA FE,0C,20,04,FD,36,05,0B, 625
2390 DATA FD,19,10,EB,DD,36,0F,01, 820
2400 DATA C9,FE,01,28,18,FE,02,28, 819
2410 DATA 25,FE,03,28,35,FD,7E,00, 766
2420 DATA D6,01,30,02,C6,13,DD,77, 822
2430 DATA 06,FD,7E,01,DD,77,07,C9, 934
2440 DATA FD,7E,01,3D,DD,77,07,FD, 1041
2450 DATA 7E,00,DD,77,06,C9,FD,7E, 1052
2460 DATA 00,3C,FE,13,38,02,D6,13, 624
2470 DATA DD,77,06,FD,7E,01,DD,77, 1066
2480 DATA 07,C9,FD,7E,01,3C,DD,77, 988
2490 DATA 07,FD,7E,00,DD,77,06,C9, 933
2500 DATA 21,D1,60,06,00,4A,09,E5, 656
2510 DATA 26,00,68,44,4D,29,29,29, 413
2520 DATA 09,29,09,C1,09,C9,FD,56, 801
2530 DATA 00,FD,5E,01,CD,D0,52,7E, 969
2540 DATA FD,46,00,FD,4E,01,CD,13, 879
2550 DATA 53,DD,7E,06,FD,77,00,DD, 1029
2560 DATA 7E,07,FD,77,01,C9,FD,7E, 1086
2570 DATA 05,FD,46,00,FD,4E,01,CD, 865
2580 DATA 13,53,C9,6F,26,00,29,29, 534
2590 DATA 29,29,29,29,11,D1,57,19, 502
2600 DATA EB,CB,00,CB,01,04,0C,60, 754
2610 DATA 69,CD,1A,BC,06,02,C5,06, 735
2620 DATA 08,C5,06,04,1A,77,23,13, 414
2630 DATA 10,FA,01,FC,07,09,C1,10, 744
2640 DATA F0,AF,01,B0,3F,ED,42,C1, 1151
2650 DATA 10,E4,C9,DD,36,04,03,DD, 948
2660 DATA 7E,0E,DD,77,02,CD,24,BB, 910
2670 DATA E6,0F,DD,77,11,F5,FE,01, 1102
2680 DATA 28,14,FE,02,28,23,FE,04, 649
2690 DATA 28,32,FE,08,28,46,F1,DD, 924
2700 DATA A6,10,B7,20,E8,C9,DD,7E, 1177
2710 DATA 01,3D,DD,77,07,DD,7E,00, 756
2720 DATA DD,77,06,DD,36,0E,01,18, 660
2730 DATA 42,DD,7E,01,3C,DD,77,07, 821
2740 DATA DD,7E,00,DD,77,06,DD,36, 968
2750 DATA 0E,03,18,2F,DD,7E,00,D6, 649
2760 DATA 01,30,02,C6,13,DD,77,06, 614
2770 DATA DD,7E,01,DD,77,07,DD,36, 970
2780 DATA 0E,04,18,17,DD,7E,00,3C, 472
```

```
2790 DATA FE,13,38,02,D6,13,DD,77, 904
2800 DATA 06,DD,7E,01,DD,77,07,DD, 922
2810 DATA 36,0E,02,F1,DD,77,10,DD, 888
2820 DATA 56,06,DD,5E,07,CD,D0,52, 909
2830 DATA 7E,FE,02,28,30,FE,15,38, 801
2840 DATA 04,FE,23,20,28,DD,77,04, 709
2850 DATA DD,56,00,DD,5E,01,CD,D0, 1036
2860 DATA 52,36,23,DD,46,00,DD,4E, 761
2870 DATA 01,7E,CD,13,53,DD,7E,06, 787
2880 DATA DD,77,00,DD,7E,07,DD,77, 1034
2890 DATA 01,CD,20,54,C9,DD,7E,11, 887
2900 DATA DD,AE,10,DD,77,11,C2,5D, 1055
2910 DATA 53,DD,7E,02,DD,77,0E,C9, 987
2920 DATA DD,46,00,DD,4E,01,DD,7E, 938
2930 DATA 0E,DD,86,0B,CD,13,53,C9, 888
2940 DATA 06,00,3E,1C,CD,1E,BB,28, 558
2950 DATA 02,CB,C0,3E,1E,CD,1E,BB, 911
2960 DATA 28,02,CB,C8,3E,47,CD,1E, 813
2970 DATA BB,28,02,CB,D0,3E,3F,CD, 970
2980 DATA 1E,BB,28,02,CB,D8,78,C9, 999
2990 DATA 21,D1,60,0E,00,06,00,C5, 555
3000 DATA 7E,E5,CD,13,53,E1,C1,23, 1115
3010 DATA 04,3E,13,B8,20,F1,0C,3E, 616
3020 DATA 0C,B9,20,E9,C9,21,22,55, 815
3030 DATA 11,D1,60,01,E5,00,ED,B0, 965
3040 DATA CD,84,54,C9,DD,36,0F,00, 912
3050 DATA 21,19,55,DD,E5,CD,AA,BC, 1156
3060 DATA DD,E1,C9,CD,84,54,3E,3C, 1190
3070 DATA CD,1E,BB,28,F9,DD,36,0F, 1001
3080 DATA 01,C9,53,43,4F,52,45,20, 614
3090 DATA 00,4C,20,00,20,48,49,20, 317
3100 DATA 35,30,30,30,30,20,54,49, 434
3110 DATA 4D,45,20,30,30,00,14,28, 334
3120 DATA 50,A0,09,05,01,01,00,0B, 267
3130 DATA 08,06,02,00,00,00,0A,06, 43
```

```
3140 DATA 04,00,00,0B,09,06,01,00, 31
3150 DATA 00,0B,82,00,01,DE,01,00, 365
3160 DATA 0F,0F,00,84,00,03,EF,00, 404
3170 DATA 00,0F,0F,00,82,00,03,77, 282
3180 DATA 00,00,0F,0F,00,01,00,04, 35
3190 DATA 77,00,00,0F,2C,01,82,01, 310
3200 DATA 00,00,00,0F,0F,00,00,01, 31
3210 DATA 00,05,C8,00,00,0F,14,00, 240
3220 DATA 04,00,02,EF,00,00,09,32, 304
3230 DATA 00,84,00,00,00,00,00,00, 132
3240 DATA 01,00,15,1B,1B,1B,1B,1B, 157
3250 DATA 1B,1B,1B,19,1B,1B,1B,1B, 214
3260 DATA 1B,1B,1B,1B,16,1C,01,00, 159
3270 DATA 00,00,00,00,00,00,20,00, 32
3280 DATA 00,00,00,00,00,00,01,1C, 29
3290 DATA 1C,00,15,1B,16,00,15,16, 141
3300 DATA 00,00,00,15,16,00,15,1B, 91
3310 DATA 16,00,1C,1C,00,17,1B,18, 152
3320 DATA 00,17,1A,1D,00,1E,1A,18, 158
3330 DATA 00,17,1B,18,00,1C,1C,00, 130
3340 DATA 00,00,00,00,00,00,00,00, 0
3350 DATA 00,00,00,00,00,00,00,00, 0
3360 DATA 1C,17,1B,1D,00,1E,16,00, 159
3370 DATA 15,1B,02,1B,16,00,15,1D, 149
3380 DATA 00,1E,1B,18,00,00,00,00, 81
3390 DATA 00,1C,00,1C,23,23,23,1C, 189
3400 DATA 00,1C,00,00,00,00,00,15, 49
3410 DATA 1B,1B,1D,00,20,00,17,1B, 165
3420 DATA 1B,1B,18,00,20,00,1E,1B, 167
3430 DATA 1B,16,1C,00,00,00,00,00, 77
3440 DATA 00,00,00,23,00,00,00,00, 35
3450 DATA 00,00,00,00,1C,1C,00,1E, 86
3460 DATA 1B,1B,1B,1B,1D,00,1F,00, 168
3470 DATA 1E,1B,1B,1B,1B,1D,00,1C, 195
3480 DATA 1C,01,00,00,00,00,00,00, 29
3490 DATA 00,1C,00,00,00,00,00,00, 28
3500 DATA 00,01,1C,17,1B,1B,1B,1B, 160
3510 DATA 1B,1B,1B,1B,1A,1B,1B,1B, 215
3520 DATA 1B,1B,1B,1B,1B,18,61,15, 277
3530 DATA 1B,1B,1B,1B,19,1B,1B,1B, 214
3540 DATA 19,1B,1B,1B,19,1B,1B,1B, 212
3550 DATA 1B,16,1C,01,00,00,00,20, 110
3560 DATA 00,00,00,20,00,00,00,20, 64
3570 DATA 00,00,00,01,1C,1C,00,1E, 87
3580 DATA 1D,00,00,00,1F,00,00,00, 60
3590 DATA 1F,00,00,00,1E,1D,00,1C, 118
```

```
3600 DATA 1C,00,00,00,00,15,1B,1A, 102
3610 DATA 1D,00,1E,1A,1B,16,00,00, 134
3620 DATA 00,00,1C,17,1B,1D,00,1E, 137
3630 DATA 22,00,00,00,00,00,00,00, 34
3640 DATA 21,1D,00,1E,1B,18,00,00, 143
3650 DATA 00,00,00,20,00,15,1B,02, 82
3660 DATA 1B,16,00,20,00,00,00,00, 81
3670 DATA 00,15,1D,00,1F,00,00,00, 81
3680 DATA 1C,23,23,23,1C,00,00,00, 161
3690 DATA 1F,00,1E,16,1C,00,00,1C, 139
3700 DATA 00,1F,00,17,1B,1B,1B,18, 159
3710 DATA 00,1F,00,1C,00,00,1C,1C, 115
3720 DATA 00,15,22,00,1C,00,00,00, 83
3730 DATA 23,00,00,00,1C,00,21,16, 118
3740 DATA 00,1C,1C,00,17,18,00,17, 126
3750 DATA 1B,1B,1D,00,1E,1B,1B,18, 191
3760 DATA 00,17,18,00,1C,1C,01,00, 104
3770 DATA 00,00,00,00,00,00,00,00, 0
3780 DATA 00,00,00,00,00,00,01,1C, 29
3790 DATA 17,1B,1B,1B,1B,1B,1B,1B, 212
3800 DATA 1B,1B,1B,1B,1B,1B,1B,1B, 216
3810 DATA 1B,1B,18,63,15,1B,1B,1B, 279
3820 DATA 1B,19,1B,1B,1B,19,1B,1B, 212
3830 DATA 1B,19,1B,1B,1B,1B,16,1C, 210
3840 DATA 01,00,00,00,20,00,00,00, 33
3850 DATA 20,00,00,00,20,00,00,00, 64
3860 DATA 01,1C,1C,00,15,1D,00,00, 107
3870 DATA 00,1F,00,00,00,1F,00,00, 62
3880 DATA 00,1E,16,00,1C,1C,00,20, 140
3890 DATA 00,00,15,1B,1A,1B,1B,1B, 155
3900 DATA 1A,1B,16,00,00,20,00,1C, 135
3910 DATA 1C,00,00,00,1E,22,00,00, 92
3920 DATA 00,00,00,00,00,21,1D,00, 62
3930 DATA 00,00,1C,17,1B,1D,00,00, 107
3940 DATA 20,00,15,1B,02,1B,16,00, 131
3950 DATA 20,00,00,1E,1B,18,00,00, 113
3960 DATA 00,1F,00,00,00,1C,23,23, 129
3970 DATA 23,1C,00,00,00,1F,00,00, 94
3980 DATA 00,15,1D,00,17,1B,16,00, 122
3990 DATA 17,1B,1B,1B,18,00,15,1B, 176
4000 DATA 18,00,1E,16,1C,00,00,00, 104
4010 DATA 00,20,00,00,00,23,00,00, 67
4020 DATA 00,20,00,00,00,00,1C,1C, 88
4030 DATA 00,1E,1D,00,00,00,1E,1D, 118
4040 DATA 00,1E,1D,00,00,00,1E,1D, 118
4050 DATA 00,1C,1C,01,00,00,00,1F, 88
4060 DATA 00,00,00,00,00,00,00,1F, 31
4070 DATA 00,00,00,01,1C,17,1B,1B, 106
4080 DATA 1B,1B,1A,1B,1B,1B,1B,1B, 215
4090 DATA 1B,1B,1A,1B,1B,1B,1B,18, 212
4100 DATA 64,00,00,00,00,00,00,00, 100
4110 DATA 00,00,00,00,00,00,00,00, 0
4120 DATA 00,00,00,00,00,00,00,00, 0
4130 DATA 00,00,10,80,00,00,30,C0, 384
4140 DATA 00,00,30,C0,00,00,10,80, 384
4150 DATA 00,00,00,00,00,00,00,00, 0
4160 DATA 00,00,00,00,00,00,00,00, 0
4170 DATA 00,00,00,00,00,00,00,00, 0
4180 DATA 00,00,00,00,00,00,00,00, 0
```

```
4190 DATA 00,00,00,00,00,00,00,00, 0
4200 DATA 00,00,00,00,00,00,33,CC, 255
4210 DATA 00,00,77,EE,00,00,77,EE, 714
4220 DATA 00,00,77,EE,00,00,77,EE, 714
4230 DATA 00,00,33,CC,00,00,00,00, 255
4240 DATA 00,00,00,00,00,00,00,00, 0
4250 DATA 00,00,00,00,00,00,00,00, 0
4260 DATA 00,00,00,00,00,00,00,00, 0
4270 DATA 00,00,00,00,00,66,66,66, 306
4280 DATA 66,66,66,66,66,00,00,00, 510
4290 DATA 00,00,00,00,00,00,00,00, 0
4300 DATA 00,00,00,00,00,00,00,00, 0
4310 DATA 00,00,00,00,00,66,66,66, 306
4320 DATA 66,66,66,66,66,00,00,00, 510
4330 DATA 00,00,00,00,00,00,00,00, 0
4340 DATA 00,00,00,00,00,10,00,00, 16
4350 DATA 80,30,00,00,C0,70,80,10, 624
4360 DATA E0,70,80,10,E0,F0,C0,30, 1184
4370 DATA F0,F0,C0,30,F0,F0,E0,70, 1536
4380 DATA F0,F0,E0,70,F0,F0,B0,F0, 1712
4390 DATA F0,F0,10,F0,F0,70,B0,F0, 1504
4400 DATA E0,70,F0,F0,E0,30,F0,F0, 1568
4410 DATA C0,10,F0,F0,80,00,70,E0, 1152
4420 DATA 00,00,70,E0,00,10,F0,F0, 832
4430 DATA 80,30,F0,F0,C0,70,F0,F0, 1440
4440 DATA E0,70,B0,F0,80,F0,10,E0, 1360
4450 DATA 00,F0,B0,80,00,F0,E0,00, 1008
4460 DATA 00,F0,E0,00,00,F0,F0,80, 1072
4470 DATA 00,F0,F0,E0,00,70,F0,F0, 1296
4480 DATA 80,70,F0,F0,E0,30,F0,F0, 1472
4490 DATA C0,10,F0,F0,80,00,70,E0, 1152
4500 DATA 00,00,70,E0,00,10,F0,F0, 832
4510 DATA 80,30,F0,F0,C0,70,F0,F0, 1440
4520 DATA E0,70,B0,F0,E0,F0,10,F0, 1472
4530 DATA F0,F0,B0,F0,F0,F0,E0,70, 1712
4540 DATA F0,F0,E0,70,F0,F0,C0,30, 1536
4550 DATA F0,F0,C0,30,F0,70,80,10, 1216
4560 DATA E0,70,80,10,E0,30,00,00, 752
4570 DATA C0,10,00,00,80,00,00,00, 336
4580 DATA 00,00,70,E0,00,10,F0,F0, 832
4590 DATA 80,30,F0,F0,C0,70,F0,F0, 1440
4600 DATA E0,10,F0,D0,E0,00,70,80, 1152
4610 DATA F0,00,10,D0,F0,00,00,70, 816
4620 DATA F0,00,00,70,F0,00,10,F0, 848
4630 DATA F0,00,70,F0,F0,10,F0,F0, 1328
4640 DATA E0,70,F0,F0,E0,30,F0,F0, 1568
4650 DATA C0,10,F0,F0,80,00,70,E0, 1152
4660 DATA 00,00,70,60,00,10,F0,70, 576
4670 DATA 80,30,F0,B0,C0,70,F0,B0, 1312
4680 DATA E0,70,F0,70,E0,F0,F0,70, 1504
4690 DATA F0,F0,F0,B0,F0,F0,F0,F0, 1856
4700 DATA F0,F0,F0,F0,F0,F0,B0,F0, 1856
4710 DATA F0,F0,10,F0,F0,70,B0,F0, 1504
4720 DATA E0,70,F0,F0,E0,30,F0,F0, 1568
4730 DATA C0,10,F0,F0,80,00,70,E0, 1152
4740 DATA 00,00,70,E0,00,10,F0,F0, 832
```

```
4750 DATA 80,30,F0,F0,C0,70,F0,F0, 1440
4760 DATA E0,70,B0,F0,E0,F0,10,F0, 1472
4770 DATA F0,F0,B0,F0,F0,F0,F0,F0, 1856
4780 DATA F0,F0,F0,C0,C0,F0,F0,B0, 1760
4790 DATA 30,F0,F0,F0,F0,70,F0,F0, 1600
4800 DATA E0,70,F0,F0,E0,30,F0,F0, 1568
4810 DATA C0,10,F0,F0,80,00,70,E0, 1152
4820 DATA 00,00,70,E0,00,10,F0,F0, 832
4830 DATA 80,30,F0,F0,C0,70,F0,F0, 1440
4840 DATA E0,70,B0,F0,E0,F0,10,F0, 1472
4850 DATA F0,F0,B0,F0,F0,F0,F0,F0, 1856
4860 DATA F0,F0,F0,F0,F0,F0,F0,B0, 1856
4870 DATA F0,F0,F0,70,F0,70,F0,70, 1536
4880 DATA E0,70,F0,B0,E0,30,F0,B0, 1440
4890 DATA C0,10,F0,70,80,00,70,60, 896
4900 DATA 00,00,70,E0,00,10,F0,F0, 832
4910 DATA 80,30,F0,F0,C0,70,F0,F0, 1440
4920 DATA E0,70,F0,D0,E0,F0,F0,80, 1616
4930 DATA F0,F0,F0,D0,F0,F0,F0,F0, 1888
4940 DATA F0,30,30,F0,F0,C0,D0,F0, 1456
4950 DATA F0,F0,F0,F0,F0,70,F0,F0, 1792
4960 DATA E0,70,F0,F0,E0,30,F0,F0, 1568
4970 DATA C0,10,F0,F0,80,00,70,E0, 1152
4980 DATA 00,00,00,EE,00,00,33,44, 357
4990 DATA 00,00,44,22,00,88,88,11, 391
5000 DATA 11,EE,A8,51,77,55,20,80, 868
5010 DATA AA,22,00,00,44,11,88,11, 442
5020 DATA 88,00,B8,A2,00,00,88,62, 716
5030 DATA 00,00,44,22,00,00,44,11, 187
5040 DATA 00,00,22,11,00,00,11,88, 204
5050 DATA 88,00,00,77,44,00,00,00, 323
5060 DATA FF,00,00,0E,00,00,03,04, 276
5070 DATA 00,00,04,02,00,08,08,01, 23
5080 DATA 01,0E,28,81,07,05,40,40, 324
```

```
5090 DATA 0A,02,00,00,04,01,08,01, 26
5100 DATA 08,00,38,82,00,00,18,C2, 412
5110 DATA 00,00,04,02,00,00,04,01, 11
5120 DATA 00,00,02,01,00,00,01,08, 12
5130 DATA 08,00,00,07,04,00,00,00, 19
5140 DATA 0F,00,77,00,00,00,22,CC, 372
5150 DATA 00,00,44,22,00,88,88,11, 391
5160 DATA 11,EE,A8,51,77,55,10,40, 788
5170 DATA AA,22,00,00,44,11,88,11, 442
5180 DATA 88,00,54,D1,00,00,64,11, 546
5190 DATA 00,00,44,22,00,00,88,22, 272
5200 DATA 00,00,88,44,00,11,11,88, 374
5210 DATA 00,22,EE,00,00,FF,00,00, 527
5220 DATA 00,00,07,00,00,00,02,0C, 21
5230 DATA 00,00,04,02,00,08,08,01, 23
5240 DATA 01,0E,18,41,07,05,20,20, 180
5250 DATA 0A,02,00,00,04,01,08,01, 26
5260 DATA 08,00,14,C1,00,00,34,81, 402
5270 DATA 00,00,04,02,00,00,08,02, 16
5280 DATA 00,00,08,04,00,01,01,08, 22
5290 DATA 00,02,0E,00,00,0F,00,00, 31
5300 DATA 00,00,00,00,00,00,00,00, 0
5310 DATA 00,00,00,00,00,00,00,00, 0
5320 DATA 00,30,B0,80,B0,00,A0,A0, 848
5330 DATA 80,00,A0,A0,80,33,A8,A0, 955
```

```
5340 DATA 80,22,22,A8,80,22,22,AA, 730
5350 DATA 88,33,BB,BB,88,00,00,00, 697
5360 DATA 00,00,00,00,00,00,00,00, 0
5370 DATA 00,00,00,00,00,00,00,00, 0
5380 DATA 00,00,00,00,00,00,00,00, 0
5390 DATA 00,00,00,00,00,00,00,00, 0
5400 DATA 00,20,B0,B0,80,20,A0,A0, 864
5410 DATA 80,20,A0,A0,80,33,A8,A0, 987
5420 DATA 80,00,AA,A8,80,00,AA,AA, 934
5430 DATA 88,00,BB,BB,88,00,00,00, 646
5440 DATA 00,00,00,00,00,00,00,00, 0
5450 DATA 00,00,00,00,00,00,00,00, 0
5460 DATA 00,00,00,00,00,00,00,00, 0
5470 DATA 00,00,00,00,00,00,00,00, 0
5480 DATA 00,30,B0,B0,80,20,A0,A0, 880
5490 DATA 80,20,A0,A0,80,33,A8,A0, 987
5500 DATA 80,22,AA,A8,80,22,AA,AA, 1002
5510 DATA 88,33,BB,BB,88,00,00,00, 697
5520 DATA 00,00,00,00,00,00,00,00, 0
5530 DATA 00,00,00,00,00,00,00,00, 0
5540 DATA 00,00,00,00,00,00,00,00, 0
5550 DATA 00,00,00,00,00,00,00,00, 0
5560 DATA 00,C0,E0,E0,E0,40,80,A0, 1216
5570 DATA A0,44,88,A0,A0,44,EE,A8, 1158
5580 DATA A0,44,AA,AA,A8,44,AA,AA, 1144
5590 DATA AA,EE,EE,EE,EE,00,00,00, 1122
5600 DATA 00,00,00,00,00,00,00,00, 0
5610 DATA 00,00,00,00,00,00,00,00, 0
5620 DATA 00,00,00,00,00,00,00,00, 0
5630 DATA 00,00,00,00,00,00,00,00, 0
5640 DATA 00,C0,E0,E0,E0,40,A0,A0, 1248
5650 DATA A0,44,A8,A0,A0,44,AA,A8, 1122
5660 DATA A0,44,AA,AA,A8,44,AA,AA, 1144
5670 DATA AA,EE,EE,EE,EE,00,00,00, 1122
5680 DATA 00,00,00,00,00,00,00,00, 0
5690 DATA 00,00,00,00,00,00,00,00, 0
5700 DATA 00,00,20,A0,00,10,50,50, 368
5710 DATA 00,20,A0,A0,00,10,50,50, 528
5720 DATA 00,30,A0,A0,80,30,D0,50, 832
5730 DATA 00,32,F0,A0,80,33,F8,D0, 1085
5740 DATA 40,31,FC,E0,80,30,F7,F0, 1252
5750 DATA C0,30,F1,F8,C0,10,F0,FE, 1431
5760 DATA C0,00,70,F3,CC,00,10,F0, 1007
5770 DATA CC,00,00,70,C0,00,00,10, 524
5780 DATA C0,00,00,00,00,00,00,00, 192
5790 DATA 00,00,00,00,00,00,0F,0F, 30
5800 DATA 39243,34003,41735,45531,40345,
     32528,43015,45615
5900 '
10000 DATA 33,0,192,6,2,197,6,8,197,6,4,
      126,18,35,19,16,250,1,252,7,9,193,
      16,240,1,176,63,175,237,66,193,16,
      228,201
10010 DATA 150,154,149,150,154,156,156,1
      49,149,147,147,154,153,149,154,153
10020 DATA 154,154,156,150,153,147,154,1
      54,154,154,154,154,149,149,149,149
10030 DATA 154,156,154,153,150,154,147,1
      54,150,156,149,149,149,149,147,153
10040 DATA 149,147,149,150,153,149,156,1
      49
```

ACU

MICRO MAIL

53 FENNEL STREET
MANCHESTER M4 3DU
TEL: 061-834 5780

AMSTRAD

	RRP	OUR PRICE
CPC6128 Colour	£399	£379
CPC6128 Green	£299	£284
PCW8256	£459	£439
PCW8512	£574	£549
RS232 for 464/664/6128	£49.95	£44.95
RS232 for PCW 8256/8512	£69.95	£59.95
DMP 2000	£159.95	£149.95
SSA1 Speech Synthesiser	£29.95	£26.95
MP2 Modulator	£29.95	£26.95
JY2 Joystick	£14.50	£12.50
Modem	£136.85	£126.00
PCW8256 Modem & Sage Software	£189.95	£172.00
FDI 2nd Disc Drive	£89.95	£84.95
DDI Disc Drive	£159.95	£149.95
	each	Box of 10
CF2 3" Discs	£3.99	£37.50
CF200 3" Discs	£5.99	£55.00

AMSTRAD CPC6128/PCW 8256/ PCW 8512 SOFTWARE

Personal Assistant	£94.95
Pocket Wordstar (Please state whether for 6128 or 8256)	£99.95
Flexifile/Flexiwrite	£49.95
Supercalc 2	£49.95
3D Clock Chess	£19.95
Touch 'n' Go	£24.95
Mastercalc 128	£34.95
Pyradev	£29.95
Protext	£26.95
Promerge	£24.95
Prospell	£24.95

SHOWROOM NOW OPEN

ALL PRICES INCLUSIVE OF VAT.

SAGESOFT	
Pop. Accounts	£99.99
Pop. Accounts/ Payroll	£149.95
Pop. Accounts Plus	£149.95
Payroll	£69.95
Invoicing/Stock Control	£69.95
Database	£69.95
Chit Chat E. Mail	£69.95
Chit Chat Viewdata	£69.95
Magic Filer	£69.95
Retrieve	£69.95
Accounts Super Combo	£199.95
HISOFT	
Pascal 80	£39.95
Devpac 80	£39.95
"C"	£39.95
Keyboard Tutor	£24.95
Pocket Cash Trader	£99.95
Masterfile II	£33.00
Microfile/ Microword	£49.95
Bridge Player	£19.95
Hitch Hikers' Guide to the galaxy	£28.95

ALL LESS 10% DISCOUNT

CAMSOFT	
Stock Control	£49.95
Payroll	£49.95
Invoicing	£49.95
Database	£49.95
PSIS Stock, Inv. & Sales	£99.95
PSIL Stock, Inv., Sales, Pur, Nom	£149.95
CAXTON	
Cardbox	£99.99
Scratchpad Plus	£69.95
Brainstorm	£49.95
Touch 'N' Go	£24.95
Smartkey	£49.95
DIGITAL RESEARCH	
DR Draw	£49.95
DR Graph	£49.95
Basic Compiler	£49.95
Pascal MT+	£49.95
Printer Extension Cable 8256/8512	£12.95
Covers 8256/8512 set	£12.95
6128 set	£12.95
464 set	£12.95
256K Expansion kit for 8256	£49.95

ALL DISC GAMES LESS 10% OFF RRP.

Post and Packing: **FREE. ALL** Computers ADD £6 for value UNDER £250

Please send me the following items

Quantity — Product — Price (inc VAT)

TOTAL

I enclose cheque made payable to: **I.M. PRIESTLEY.**

Name

Address

Postcode — Day Tel

Signed

Please debit my ACCESS/VISA

---

summer sizzlers from DIRECT MAIL DISCOUNT

AMSTRAD

5.75
GALAXIA
MESSAGE FROM ANDROMEDA
CRICKET CAPTAIN
3D STARSTRIKE
CONFUZION
FLIGHT PATH 737
WAR ZONE
BERKS TRILOGY
EMERALD ISLE
BLAGGER
BLOCKBUSTERS
BRIAN JACKS SUPERSTAR
COMMANDO
CONTRAPTION
DARK STAR
DEFEND OR DIE
FA FOOTBALL
GYROSCOPE
MOON CRESTA
ON THE RUN
PLAY YOUR CARDS RIGHT
RASPUTIN
RUNESTONE
SOUTHERN BELLE
SWEEVOS WORLD
TECHNICIAN TED
TLL

6.15
PYJAMARAMA

6.50
SOULS OF DARKON
"V"
ALEX HIGGINS POOL
ALEX HIGGINS SNOOKER
BATMAN
BULLSEYE
DALEY THOMPSON
DEATHSVILLE
DRAGONS
FANTASTIC VOYAGE
FIGHTER PILOT
FIGHTING WARRIOR
FRANK BRUNO BOXING
GEOFF CAPES STRONGMAN
GHOST AND GOBLINS
GLEN HODDLE
GRAND PRIX 2
GREEN BERET
HEAVY ON THE MAGICK
HYPER SPORTS
KNIGHT RIDER
PANZADROME
PING PONG
RAMBO
ROCKY HORROR SHOW
ROLAND IN TIME
SAMANTHA FOX
SLAPSHOT
STREET HAWK
SUPER SLEUTH
TRAFFIC
WHO DARES WINS 2
YE ARE KUNG FU
ZOIDS
3D STUNT RIDER
ANIMAL VEG MINERAL
CHESS
DALEY THOMPSON SUPERTEST
GEMS OF STADUS
HAPPY LETTERS
HAPPY NUMBERS
HAPPY WRITING
MAP RALLY
STAR COMMANDO
TIME ONE
TIME TWO
WORLDWISE
CAULDRON

6.99
FOOTBALL MANAGER
SORCERY

7.29
3D BOXING
3D GRAND PRIX
ARTWORK
BATTLE FOR MIDWAY
BATTLE OF THE PLANETS
BEACH HEAD
BOULDERDASH
CLUEDO
COMPUTER HITS 10 GAMES
CYRUS CHESS
DEZERT RATS
EMPIRE
FAIRLIGHT
GET DEXTER
GOLDRUN
MARS PORT
RETURN TO EDEN
ROBIN OF SHERWOOD
RUNESTONE
SEAS OF BLOOD
SKY FOX
SPIN DIZZY
SPITFIRE 40
STARION
STRIKE FORCE HARRIER
TAU CETI
THEY SOLD A MILLION 2
THEY SOLD A MILLION
THREE WEEKS IN PARADISE
VOL 2 COMPUTER HITS
WAY OF THE EXPLODING FIST
WAY OF THE TIGER
DEVILS CROWN
HACKER
MINDSHADOW
BARRY MCGUIGAN BOXING

7.65
SUPER CHESS
EVERYONES A WALLY
ALIEN 8
KNIGHTLORE

8.25
GHOSTBUSTERS

8.50
WRIGGLER (DISK)

9.50
BATTLE OF BRITAIN (DISK)
MUTANT MONTY (DISK)
ROLAND IN TIME (DISK)
3D STUNT RIDER (DISK)
AIRWOLF (DISK)
ALEX HIGGINS SNOOKER (DISK)
ALEX HIGGINS POOL (DISK)
ALIEN (DISK)
CASH PLANNER AND FORECASTER
CENTRE COURT (DISK)
DRAGONS (DISK)
FANTASTIC VOYAGE (DISK)
GATE CRASHER (DISK)
GLEN HODDLE (DISK)
HEAVY ON THE MAGICK (DISK)
HYPER SPORTS (DISK)
MASTER CHESS (DISK)
MOON CRESTA (DISK)
RED ARROWS (DISK)
ROLAND IN SPACE (DISK)
SATELLITE (DISK)
SCOUT STEPS OUT (DISK)
SEE SAW (DISK)
SUBTERRANEON STRIKER (DISK)
SUPER PIPELINE (DISK)
SWEEVOS WORLD (DISK)
TOMBSTONE (DISK)
TRAFFIC (DISK)
WIZARDS LAIR (DISK)
YE ARE KUNG FU (DISK)
STOCKMARKET (DISK)

10.75
3D BOXING (DISK)
3D GRAND PRIX (DISK)
BEACH HEAD (DISK)
CYRUS 2 CHESS (DISK)
DUN DARACH (DISK)
GHOST AND GOBLINS (DISK)
HIGH RISE (DISK)
JUMP JET (DISK)
LORDS OF MIDNIGHT (DISK)
MACROCOSMICA (DISK)
MARS PORT (DISK)
RAID (DISK)
SORCERY + (DISK)
TANK COMMANDER (DISK)
ZAXXON (DISK)
TAKE 5 (DISK)
TLL (DISK)
"V" (DISK)
2112 AD (DISK)
BATMAN (DISK)
COMPUTER HITS & GAMES (DISK)
ELITE
EMPIRE (DISK)
GREET BERET (DISK)
HOBBIT
KNIGHT RIDER (DISK)
LASER BASIC
MELBOURNE DRAW
MINI OFFICE 2
ROCKY HORROR SHOW (DISK)
SPITFIRE 40 (DISK)
STREET HAWK (DISK)
STRIKE FORCE HARRIER (DISK)
TRIPLE PACK (DISK)
VOL 2 COMPUTER HITS (DISK)
WAY OF THE TIGER (DISK)
WHO DARES WINS (DISK)
WORKING BACKWARDS (DISK)
BARRY MCGUIGAN BOXING (DISK)

11.50
BRIDGE PLAYER 3 (DISK)
LORD OF THE RINGS
MUSIC SYSTEM

12.99
REMBRANT (DISK)
MAILING LIST
STOCK CONTROL
TOOLKIT (DISK)
ULTRABASE (DISK)
ULTRABASE

13.50
DATABASE

13.99
CHEMISTRY REVISION "O" (DISK)
HOME ACCOUNTS MANAGER (DISK)
PHYSICS REVISION "O" (DISK)
SCREEN DESIGNER (DISK)
3D CLOCK CHESS
AMSWORD ADVANCED
ILLUSTRATOR (DISK)
MINI OFFICE 2 (DISK)
MUSIC SYSTEM (DISK)
QUILL (DISK)

17.50
AMSWORD ADVANCED (DISK)

19.95
ASSEMBLER-DISASSEMBLER
DECISION MAKER
ENTREPRENEUR
MASTERFILE
PROJECT PLANNER
PROSPELL (DISK)

20.50
PROTEXT (DISK)
GRAPHIC CREATOR (DISK)

20.95
PAYROLL
DECISION MAKER (DISK)
ENTREPRENEUR (DISK)
MASTERCALC (DISK)
PROJECT PLANNER (DISK)
MASTER FILE (DISK)
PYRADEU (DISK)

23.95
CASH BOOK ACCOUNT (DISK)
NOMINAL LEDGER (DISK)
PURCHASE LEDGER (DISK)
TRANSACT (DISK)

25.95
PASCAL

39.95
MICROPEN (DISK)
MICROSCRIPT (DISK)
MICROSPREAD (DISK)
SUPERCALC 2 (DISK)

79.95
BUSINESS PACK (DISK)
BUSINESS SYSTEMS (DISK)

Please add 20p per title P&P

SEND FOR OUR FREE CATALOGUE

Selection from our range of BUDGET BARGAINS

1.99
MR FREEZE
WILD BUNCH
SUBSUNK
SHORTS FUSE
DEVIL'S CROWN

2.50
CLASSIC ADVENTURE
3D INVADERS
CODE NAME MATT
BLAGGER
ANIMATED STRIP POKER
LUCKY FRUITS
CODE NAME MATT II
A VIEW TO A KILL
TALES OF ARABIAN NIGHTS
FOREST AT WORLD'S END
HEROES OF KARN
JEWELS OF BABYLON
GATECRASHER
WARLORD
SULTAN'S MAZE
GALACTIC PLAGUE
SPECIAL OPERATIONS
REDCOATS
GEOFF CAPES STRONG MAN
ERGBERT NEW
PYJAMARAMA NEW
OPERATION CARETAKER NEW
ON THE RUN NEW

3.50
AMERICAN FOOTBALL
ALIEN
BOUNTY BOB STRIKES BACK
FU KUNG IN LAS VEGAS
ALEX HIGGINS WORLD POOL
3D STUNT RIDER
FRIDAY THE 13TH
DYNAMIC DAN NEW
WAR ZONE NEW
SWEEVO'S WORLD NEW
SNOOKER

add 20p/title for p&p

SPECTRAVIDEO QUICKSHOT MKII S



- Helicopter style grip with fire button on top.
- Suction feet on the bottom for added stability.
- Ergomatic design for ease of use.
- Auto fire mode.
- The world's best selling joystick, over 6 million sold worldwide.
- ORDER CODE: SVQ2 RRP £9.95

OUR PRICE 5–99 +£1 for P/P

DATEX MICRO-STICK



- Micro-Switch contactor.
- Sure firing control and Quick shot option.
- Arcade joystick feeling.
- Built-in stabilizing suction cups.
- ORDER CODE: DTMSTK RRP £17.95

OUR PRICE 14–95 +£1 for P/P

KONIX SPEEDKING



- Available in left and right handed versions.
- Uses top quality microswitches with a life expectancy of 10 millions actions each.
- ORDER CODE: KOSPEED RRP £12.95

OUR PRICE 9–95 +£1 for P/P

To: AGF, Dept AM, 26 Van Gogh Place, Bognor Regis, West Sussex

ITEM — PRICE

I enclose cheque/PO. for £ payable to AGF Direct Mail Discount

Access/Visa/Diners

My credit card number is:

NAME

ADDRESS

POSTCODE

SIGNATURE — DATE

COMPUTER: — Telephone (0243) 823337 agf

Gift Pack

3D TIME TREK,
HOUSE OF USHER,
JOHNNY REB,
SURVIVOR.



amazing • value •

5.99 +40p P+P

REMOTE-CONTROL!

for your AMSTRAD only 9.99 WIRELESS JOYSTICK (16.95Pd)

TRACKBALL

Arcade-style Game Control.

Replaces normal joystick to give roller control action to your software collection.

ONLY £19!

AMSTRAD COMPUTER USER

Exclusive reader

Subscriptions

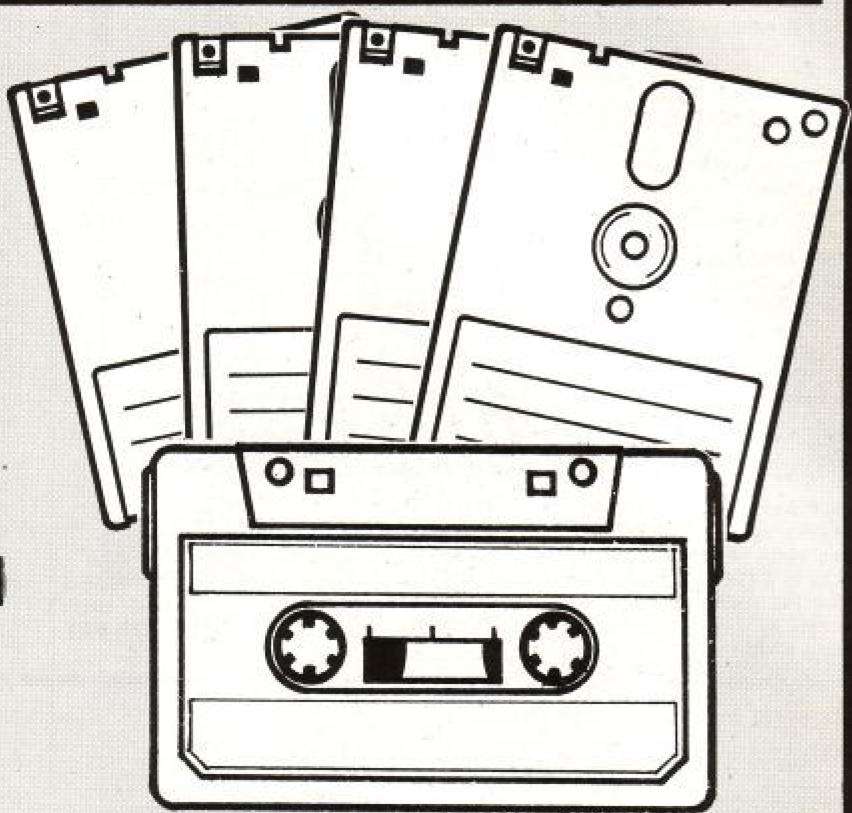
Cheap discs WOW!

Discs are essential to anyone with an Amstrad disc drive so if you own a DDI-1, CPC 664, CPC 6128, PCW 8256 or even a PCW 8512 you will be interested in this special offer.

Our discs cost less than £2.74 each.

You could pay as much as twice that, the usual price is around £4 per disc. "There must be a catch". Yes, there is – you can only buy four discs at this special rate and you can only qualify for the offer when you subscribe to *Amstrad Computer User.*

This means that for the bargain price of £22.95 you get four 3in CF-2 discs and 12 issues of *Amstrad Computer User,* full of programs, listings, reviews and articles to help you make the most of your computer and discs. For overseas readers the prices are £37.95 for subscribers within Europe and £54.95 for readers outside Europe.



Tapes/Discs

Tapes and discs contain all the major listings from *Amstrad Computer User. Tapes cost £3.50; discs £6.50. Contents of the latest issues included:*

JANUARY: Mode 3, how to use the Amstrad's secret 8k screen mode.
Sorcery plus pokes and sprite editor.
Shaded dump utility for Epson printers.
Pak Caverns machine code and Basic Game.

FEBRUARY: Animation: simple graphic displays.
Roland takes a running jump game and screen designer.
Galaxians Revenge. Space shoot-em-up.

MARCH: Roland takes a running jump source code.
Racer – prize winning listing.

APRIL: Animator, an advanced cartooning program.
Re-defined characters for the PCW 8256.

MAY: Homespread, one liners, GSX for 6128/8256.

JUNE: Super arcade game. Simple Music, interrupt driven tunes.

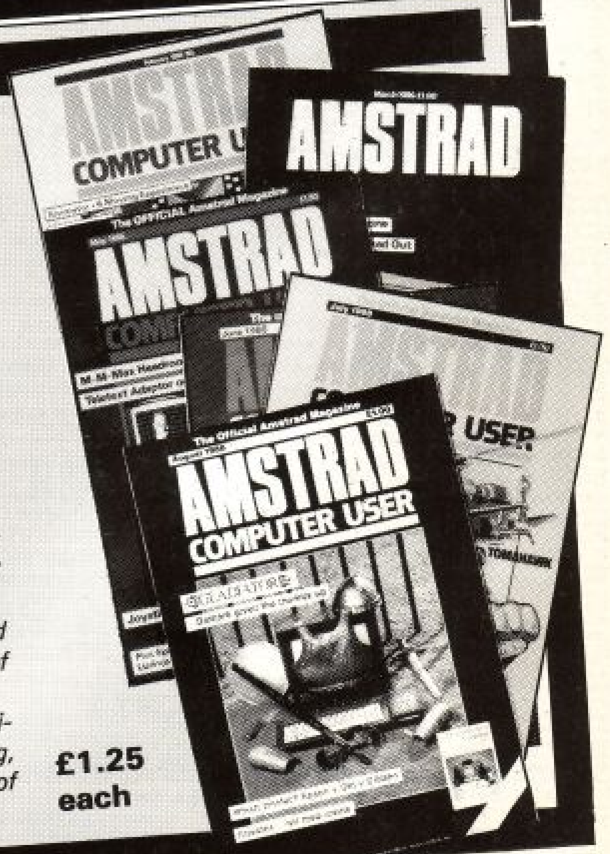
JULY: Battle of the cars, TLL pokes, Goin' Loco and ZX loader.

AUGUST: Interceptor, airborne action. Space Mania (Yes it really is on this tape). Screen to printer hack, Fairlight hack and more.

Back issues

1985 – March: *Interrupt driven screen dump. Music explained. Fill routine.*
April: *Printer reviews. Joystick reviews. Proportional printing.*
May: *CPC 664 review. Virgin interview. Using 5¼ inch discs.*
June: *Maxam assembler review. Rock Hopper listing. CP/M user group feature.*
July: *664 (and 6128) to 464 conversion. Graphics toolkit listing. Speech synthesisers compared.*
August: *Screen designers compared. Technician Ted map. Knight Lore map and pokes.*
September: *Double height routine. Unsung heroes – MEJ. Crazy legs listing.*
October: *CPC 6128 review. Okimate 20 review. DK'tronics light pen.*
November: *Amgraph business graphics listing. DMP – 2000 review. Life program.*
December: *Everyone's a Wally map and pokes. Protext review. Enhanced trace utility.*
1986 – January: *Mode 3 revealed. Sorcery plus pokes and map. Shaded dump listing.*
February: *Brainstorm review. Graphics adventure creator. DK'tronics ram expansion review.*
March: *Communications survey. Laser Basic reviewed. The Music system examined.*
April: *Using the 6845. Screen flipping on the 6128. Graphic packages reviewed.*
May: *Max Headroom. Joysticks compared. Teletext adapter reviews. Homespread listing. Dummy Run map. CPS review.*
June: *Batman Map. Biggles preview. Get Dexter Map. Music made simple. ABC Planner calc.*
July: *Palace interview, Activision, Load Spectrum screens into an Arnold, Battle of the cars program.*
August: *Equinox mapped, Printer mini-survey, Midi interface, Interceptor listing, Mastertronic interview, Last free issue of ABC.*

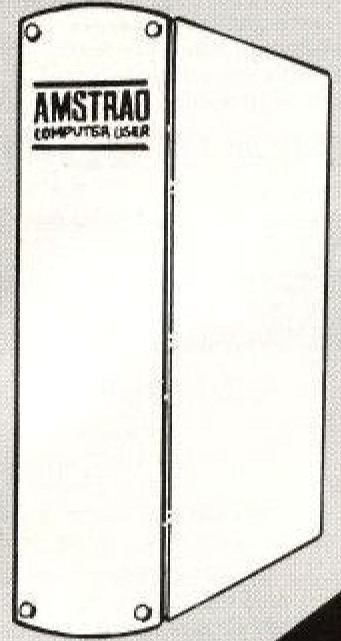
£1.25 each



Use the order form opposite – no stamp needed

offers

Binders

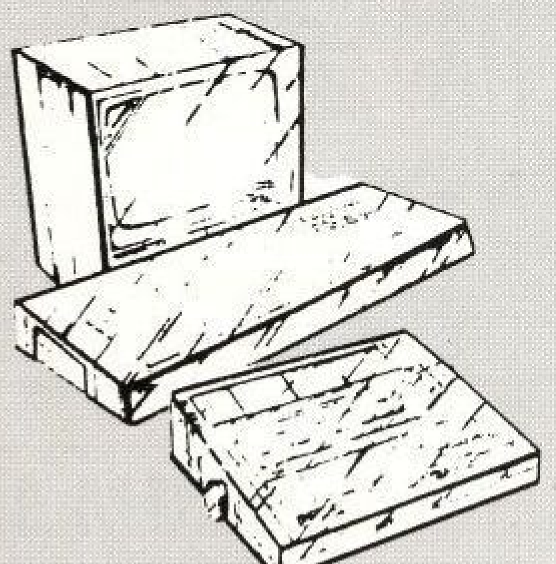


Your *Amstrad Computer User* is the ideal source of reference for every user of Amstrad computers. Keep your magazines tidy and in tip-top condition by using our top quality binder.

The *Amstrad Computer User* binder holds 12 issues. Each binder is black with the logo embossed in silver.

ONLY £3.95

Dustcovers



Keep your equipment free from dust and grime with an *Amstrad Computer User* dustcover, made from clear pliable vinyl and bound by strong red cotton and sporting the logo.

CPC 464/664 keyboard cover	£3.95
CPC 6128 keyboard cover	£3.95
Green screen monitor cover	£5.95
Colour screen monitor cover	£5.95
PCW 8256 keyboard, monitor and printer set	£11.95

AMSTRAD COMPUTER USER

ORDER FORM

Offers subject to availability Valid to 31.9.86
All prices include postage, packing & VAT.
All overseas items despatched by air mail.

Subscriptions

(✓) £ p

£12 UK and Eire	8000	
£25 Europe	8001	
£40 Overseas	8002	

Commence with ________ issue

Subscription offer†

Four 3" discs £10.95* 8115

*Europe add £2. Overseas add £4

†Only available if accompanied by subscription order.

Back numbers £1.25 each

Jan/Feb '85	8003	N/A	December	8013	
March	8004		January '86	8014	
April	8005		February	8015	
May	8006		March	8016	
June	8007		April	8017	
July	8008		May	8018	
August	8009		June	8019	
September	8010		July	8020	
October	8011		August	8021	
November	8012				

Tapes & Discs

Tapes £3.50; Discs £6.50

		Tape	Disc
January '86	8044/45		
February '86	8046/47		
March '86	8048/49		
April '86	8050/51		
May '86	8052/53		
June '86	8054/55		
July '86	8056/57		
August '86	8058/59		
September '86	8060/61		

Dust-covers

CPC 464/664 keyboard	8100
CPC 6128 keyboard	8101

£3.95

CPC range green screen	8102
CPC range colour monitor	8103

£5.95

PCW 8256 keyboard, monitor and printer set 8104

£11.95

Binders

£3.95 UK
£6.95 Europe
£10.95 Overseas

8106

European and Overseas readers, please add £2 per item unless otherwise indicated

TOTAL ________

Send to
Amstrad Computer User,
FREEPOST,
36 St Petersgate,
Stockport SK1 1HL.

Telephone orders 061-429 7931 *24 hours*
Enquiries 061-480 0171 *9am 5pm*

Please indicate method of payment (✓)

☐ Access/Mastercharge/Eurocard/Barclaycard/Visa

Expiry date /

Signature ________

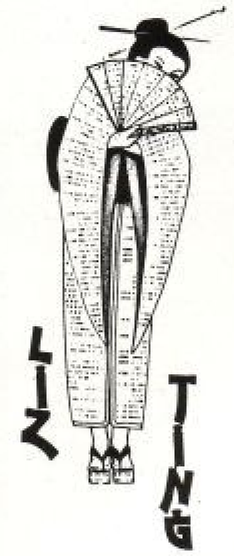
☐ Cheque/PO made payable to Amstrad Computer User

Name ________

Address ________

PLEASE PRINT IN BLOCK CAPITAL LETTERS
Please allow up to 28 days for delivery

ACU9



This means YOU!

We want lots of shortish programs for our readers to type in. They don't have to be games – we just have a preference for them. They can be anything that we find interesting. The things we don't find interesting are biorythm programs, pools predictors, simple databases, or anything to do with quadratic equations – unless they are written in one line, cellotaped to half a million quid or draw a pretty picture on the screen. Remember that you are writing a program for publication. Make your program easy to debug. Don't include unlistable characters in the program. Document start addresses and length of code when using machine code. Send the program on disc or cassette and include a SAE if you want it back. Don't include commands that work only on one particular machine.
Now you know what to do, get cracking!
Send off your program today to:

Liz Ting Amstrad Computer User 169 Kings Road Brentwood CM14 4EF

The Least Significant Bit

The Amstrad comes of age

Time. No, not the musical, nor the album by ELO. Time is that property measured in years, months, weeks, days, hours, minutes, seconds and nanoseconds. It has the magical property of always passing, and yet while it does lots of things happen. As time passes people learn, and it is perhaps now that there is the greatest base of knowledge on the CPC computers.

Arnold is two years old and it has taken that long for all the elements of the support circus to arrive in town. When the CPC464 was shown at the PCW show in 1984 it was easy to say that it is a grown-up Spectrum. It was easy to call it a Z80 based Beeb and it was easy to say that before long there would be a host of add-ons for the computer we know and love.

It was easy to be wrong. It has taken a long time for all the add-ons to appear.

Now it has happened. The CPC is in its prime, in the words of Prime Minister Macmillan "You've never had it so good". Once upon a time the CPC 64 (no, not 464) was seen as a machine which no one would want to expand – you could buy a joystick and that was that. Thanks to the foresight of bods within Amstrad they launched the disc drive, the DMP-1 and the DMP-2000 printers. The men from Brentwood provided all that was needed to put together a basic computer system.

The best thing they did was to provide that connector at the back which is simply labelled "expansion". Now when a computer designer leaves something for expansion he (or she, LSB can't be sexist even if we don't know of any female computer designers) doesn't know what is going to be attached. The magic words "for expansion" provide room for a host of other people to rush in and make the computer really fly.

This is being written on a 464 which was bought the day they went on sale. Sticking out of the back is an Arnor Maxam board, a Honeysoft ROM board with Arnor's Utopia and Protext sitting next to two Pace Commstar ROMs. Then there is the Pace/Honeysoft serial interface which leads to an old WS 2000 modem and finally an Amstrad disc interface. That is just this set-up, but think what could be added. A 256k RAMpack from DK'tronics – a device so brilliant that even Amstrad's technical department are baffled (and impressed).

There could be a lightpen – preferably the Dart fibre optic one. The naughty Mirage Imager (yes it took us a while to spot the anagram). A host of other ROM boards and loads of ROMs. Several serial interfaces, parallel interfaces, a mouse (OK so the AMS mouse uses the joystick port). There are digitising cameras in the wings from AMS and Sunset, there is a digitising pad from Grafpad. There are speech synths, midi interfaces and drum machines. You name it and it is available.

At a time when the CPC is being branded old by the press with eyes for sexy 16 bit computers, they are missing the mountain of add-ons for Arnold. Someone who buys a CPC464 this week has left the shop with a much more exciting computer than someone who bought a very similar computer 24 months ago.

But the software is disappointing. Even today you see software on the Spectrum which makes you sit up and say "Wow, that's good", but nothing ever appears on the Amstrad that is that good. The closest thing is when a Spectrum stunner is converted.

Where are all the brilliant games? **ACU**

ADVERTISERS' INDEX

DESIGN

DESIGN

TAKING... ...TIGER MOUNTAIN

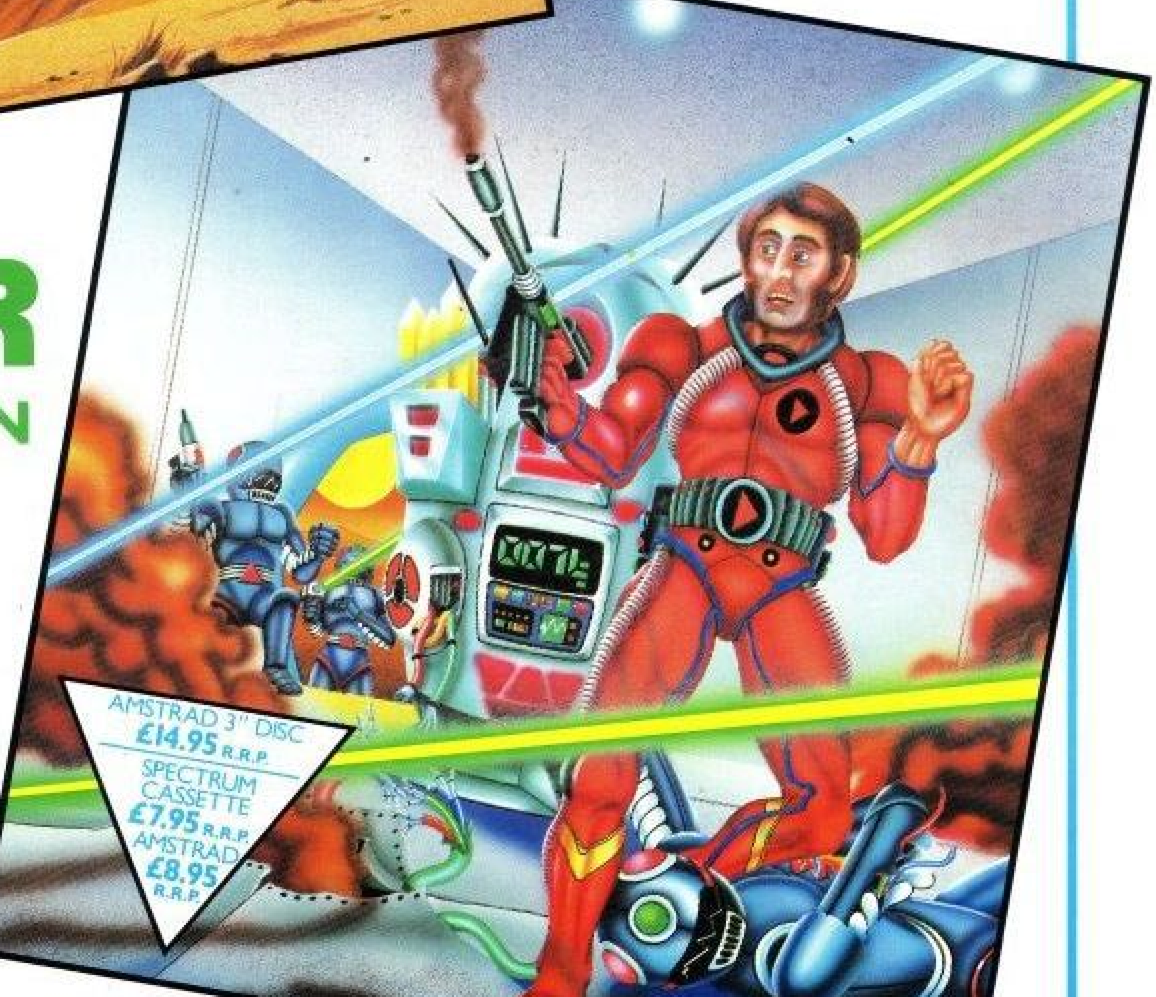


THE ODDS ARE AGAINST YOU!

You'll have to plan for the future and use your tactical skills to take the attack-tank through to "TIGER MOUNTAIN". "TAKING TIGER MOUNTAIN" is in 3D colour, set in a real-time battle environment, which makes it the most advanced battle simulation available.

For the AMSTRAD CPC Range.

(Price includes P&P)



N-E-X-O-R

THE COUNTDOWN HAS BEGUN...

One man stands alone to defend the ultimate weapon "NEMESIS" from the Andromedan robot forces. He has to escape with the "NEMESIS" intact, or start the countdown to self-destruct. Time is running out, every second counts...

For the SPECTRUM and AMSTRAD CPC Range.

Selected "Design Design" titles are available from:–

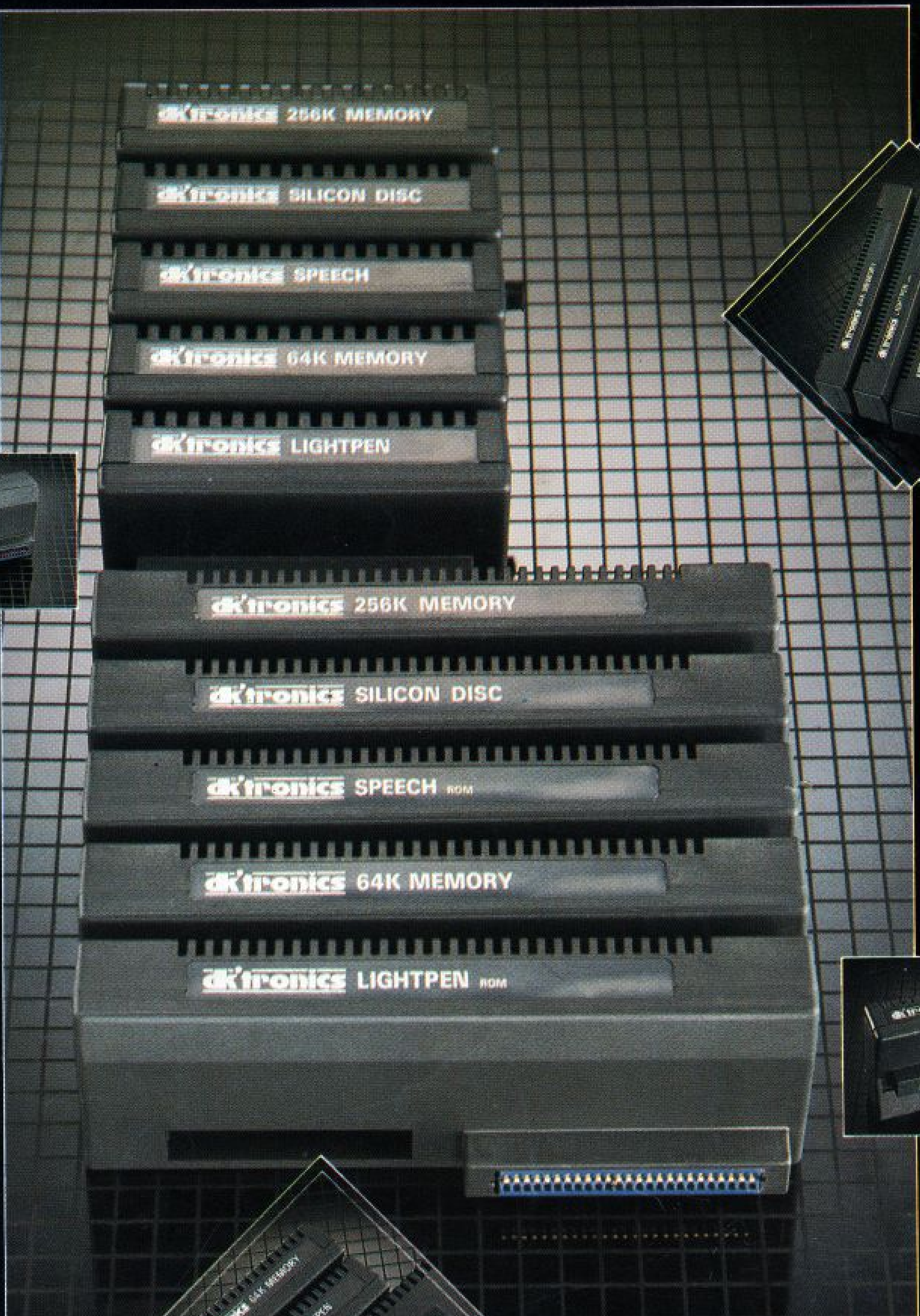
Boots WOOLWORTH WHSMITH John Menzies COMET

and all leading software stockists, or direct from:–

Design Design

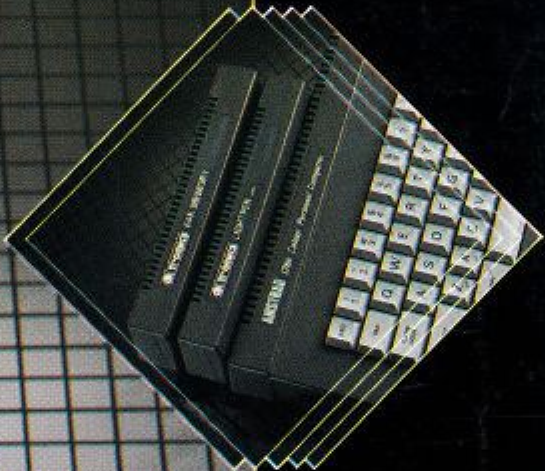
Design Design Software,
125, Smedley Road, Cheetham Hill,
MANCHESTER M8 7RS.
Trade enquiries: 061-205 6603

POWER BEHIND YOUR AMSTRAD





You can order by phone quoting your Barclaycard or Access number, orders are normally despatched in 24 hours.







DK Tronics products are available in all good computer stores. If you have any local problems obtaining them contact us directly.

dk'tronics

MANUFACTURERS OF POWERFUL PERIPHERALS

DK Tronics Limited
Englands Lane, Gorleston-on-Sea, Great Yarmouth, Norfolk NR31 6BE
Phone 0493 602926 (24 Hours), Telex 975408